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## Rail-Road News.

### La Grange and Atlanta Railroad.

This road is nearly completed to Newman, lacking only a distance of five miles. The distance from Atlanta to Newman is about forty miles. I have no doubt but the road would have been completed to the latter place by this time if the operators had not been prevented by an almost impenetrable bed of hard granite rock which lay in the course of the road. The road is built without any mud sills or stringers, having no other material but cross ties and large T iron. This superstructure is, if I am not mistaken, superintended by a Mr. Frost, one of the engineers of the road. Mr. Frost deserves more than usual credit for the manner in which this work is done. All who have the great pleasure of riding over this road express themselves highly satisfied, and say in positive terms that it is the best road in the South or North.

Respectfully Yours, P. H. G

La Grange, July 11th, 1851.

### Railroad Car Building in Louisville, Kentucky.

We notice, says the Louisville Courier, that sundry persons have largely engaged in business as carpenters and joiners, and purpose having some of the most complete establishments in the West, intending at once to engage in the business of manufacturing railroad cars. The parties are said to be intelligent, enterprising, energetic, practical men—the very kind of men to take vigorous hold of such an enterprise, and we know that their works will in all respects be equal to the best. One of them is now at the East perfecting his arrangements; as soon as he returns, which will be in a few days, they will commence operations. We expect soon to see the Frankfort, Jeffersonville, and New Albany roads stocked with cars from this manufactory.

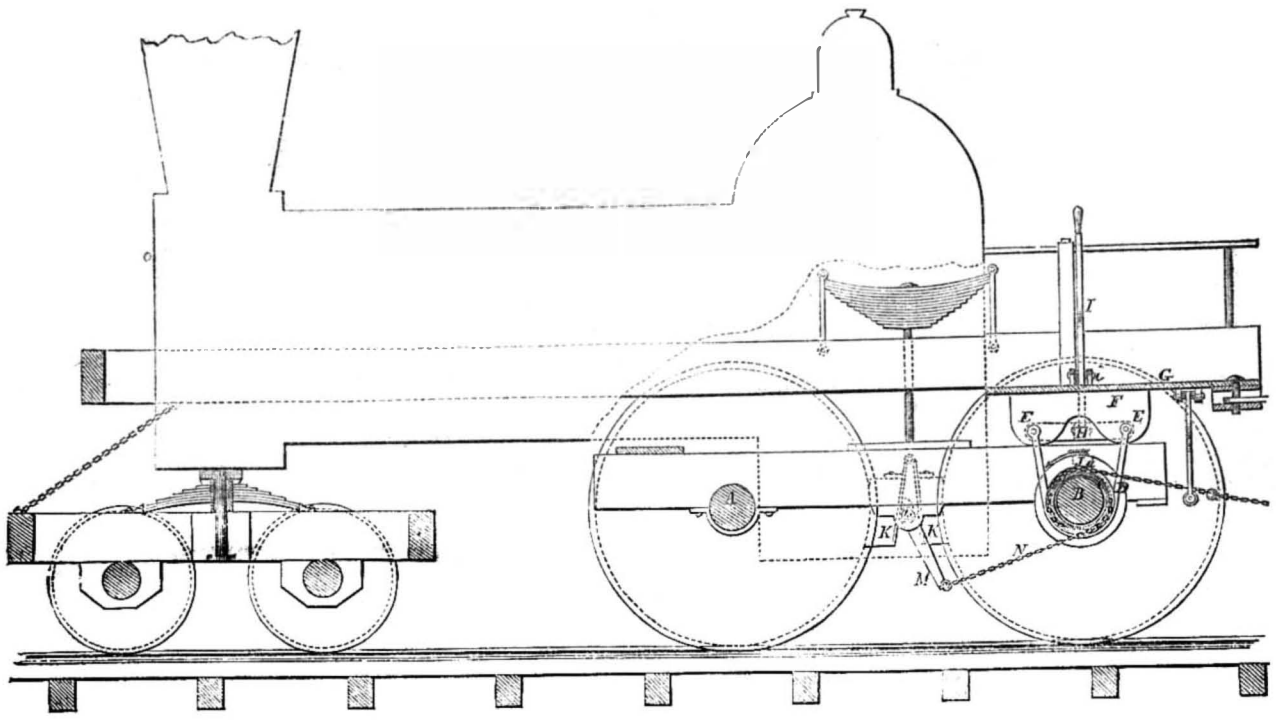
Louisville appears to be reaping the reward of her energy and liberality in giving such strong and liberal aid at once to the internal improvement enterprises which centre there. The railroad to Lexington is now a pleasant route, and the distance is run in a few hours. From Madison and from Jeffersonville, into Indiana, the cars are daily arriving and departing with freight and passengers—and these roads are steadily extending.

### Blue Rose.

The horticulturists of Paris, says a correspondent of the New York Express, have succeded by artificial crossings in obtaining a natural rose of a blue color, which is the fourth color obtained by artificial means—that and the yellow or tea rose, the black or purple rose, and the striped rose, being all inventions, and the result of skilful scientific gardening.

A deposit of stone-coal has been discovered in Perry Co., Ind., in which the layer of coal is said to be 138 feet deep.

## WADE'S RAILROAD BRAKE.---Fig. 1.

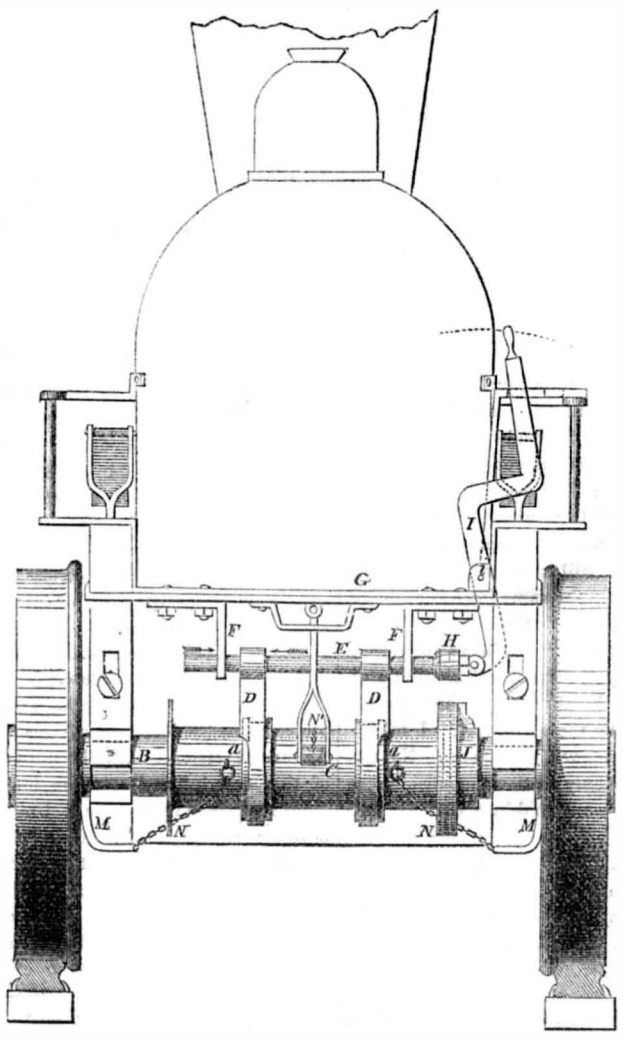


The accompanying engravings represent an improvement on Railroad Brakes, invented by Mr. Robert M. Wade, Wadesville, Clark Co, Va., and for which he has applied for a patent. Figure 1 is a longitudinal vertical section of a locomotive engine and car. Figure 2 is a back end elevation of the engine. Similar letters refer to like parts.

The nature of this invention consists in applying the necessary power to operate the brakes by means of chains attached to levers in communication with the brakes and to the periphery of a drum, which is hung loosely upon one of the driving axles, but is governed by a clutch under the control of the engine driver or brakesman, and can be made to revolve with the axle and wind up the chains upon its periphery and thus actuate the levers.

A is the main driving axle of the locomotive, and B is another driving axle supposed

### Figure 2.



to be coupled with it. C is the drum fitted loosely upon the axle, B; it is embraced by two iron bands, D D, which fit in grooved collars, *a*, surrounding it. The ends of these bands are firmly secured to two parallel bars, E E, which hang and fit so as to be capable of sliding in guide plates, F F, below the platform, G, on which the engineer or other attendants stand. The two bars, E E, are connected by a bar, H, at right angles to their length, and to this bar is connected the lower end of the lever, I, which had its fulcrum at *i*, and stands up above the platform, G, in a convenient position to be actuated by the engineer or brakesman, who, by moving it, can slide the drum, C, lengthwise upon the axle, B, and bring it either into or out of contact with the clutch, J, which is firmly secured on the axle. K K are the brakes which operate on the driving wheels of the engine, and K′ K′, those which operate on the car wheels; they are forced against the wheels by toes, *c*, on axles, L, L, hung in fixed bearings below the engine and cars. M M are levers secured to the axle, L, below the engine, the axle forming a fulcrum upon which the levers act to force the toes against the brakes. N N are chains connecting the end of the lever, M, with the periphery of the drum, C, to which it is secured. M′ M″ are levers similar to M, secured to the axles, L L, below the car. Similar levers are required by every set of brakes on the train of cars. M′ is connected to the periphery of the drum, C, by a chain, N′, and all the levers, M′, M″, &c., are connected together by chains, N″, N‴, so as to act simultaneously.

The shafts, L, of the cars are provided with an additional set of levers, O, O′, &c., connected by chains, P, P′, P″, for the purpose of actuating the brakes when the opposite ends of the cars are attached to the engine; the ends of these chains, or of either set, when not in use, are hooked on to the ends of the car, as shown in figure 1, only the set in use being connected with the drum, C.

The brakes are put in operation when necessary, by merely turning the upper end of the lever, I, to the left, or in the direction of the black dotted arc in figure 2, when the parallel bars, E E, move in the direction of the black arrow, shown in the same figure, the bands, D D, move the drum, C, in the same direction, and bring it in contact with the clutch, J; the axle, B, which revolves in the direction of the arrow shown in figure 1, then carries round the drum until the brakes, K K, are brought to bear upon the driving wheels when their friction on the peripheries, combined with the draft of the chains upon the axle, stop the revolution of the engine, the draft of the chains rendering it imperative that the engine should stop entirely. The brakes along the whole train of cars are put in

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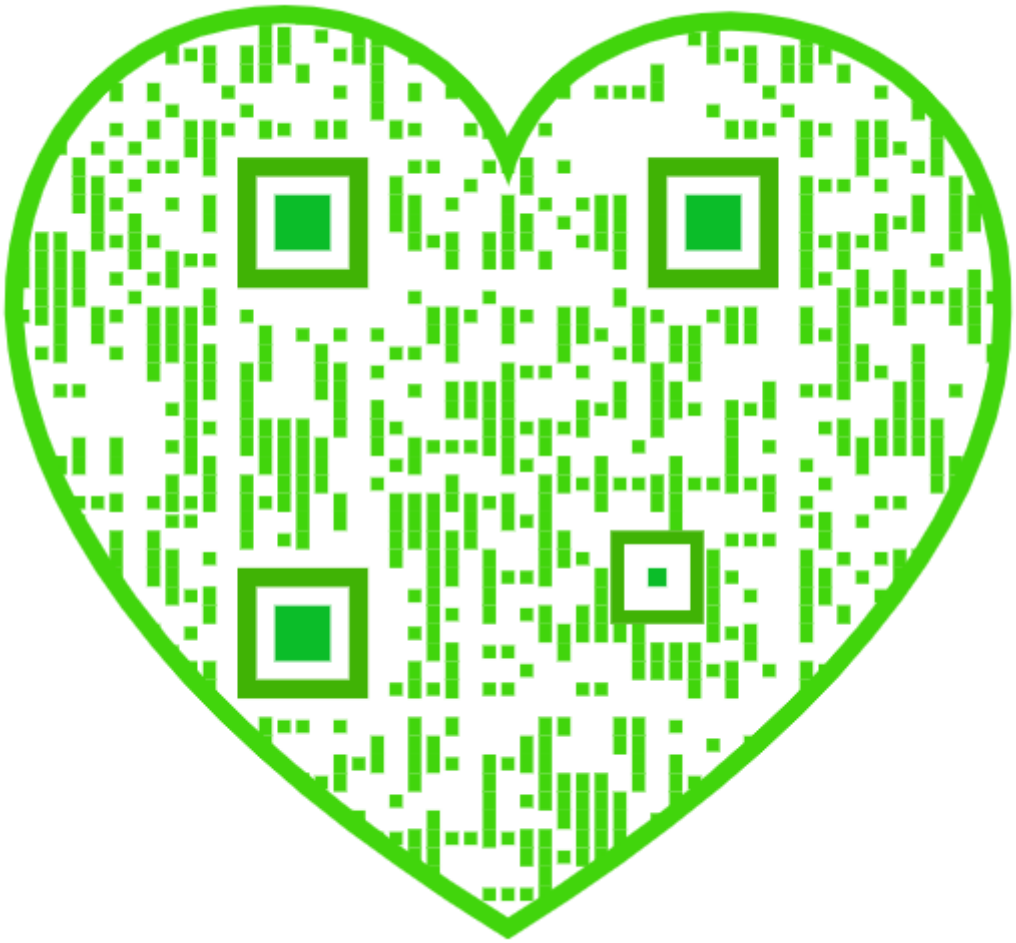

operation upon the wheels at the same instant, and must quickly stop or sufficiently impede the progress of the train. The brakes are withdrawn by turning the lever, I, in the direction of the dotted arc in fig. 2, and throwing the parallel bars, E E, and the drum back in the direction of the other arrow in the same figure, so as to release the drum from the clutch, F, when it is left free, and will not be affected by the revolution of the axle.

# Miscellaneous.

Special Correspondence of the Scientific American.

**English Patent Laws, &c.**

LONDON, July 4th 1851.

A bill has been introduced into the British Parliament, for an amendment of the patent laws, and on the 1st inst. Earl Granville, in the house of Lords, made a very able speech on the subject in which he exhibited a good hearty feeling towards inventors. It is not possible for me to present all the important features of this bill in one letter, and perhaps it is not essential.

The measure brought forward by Lord Granville, is intended to obviate some of the chief objections that make the present system not only no protection, but a direct obstruction to scientific discovery and mechanical improvements. It is an open question, whether or not patent laws, of any description, are a real advantage to inventors. Lord Granville expressed his own belief that patent rights were advantageous neither to the public nor to ingenious men to whom society is indebted for important discoveries. The arguments he urged in support of this opinion were perhaps of a somewhat questionable kind, and derived their strength rather from the expensive and complicated process by which the rights of any man to an exclusive property in the results of his own ingenuity, can at present be secured, than from inferences fairly deducible from such facts as he alleged.

There are at present eight different offices, and a great number of stages through which every inventor must pass in the process of taking out a patent. The object of Lord Granville's bill is to diminish expense and delay; to give greater security to the inventor; and to prevent fraud. His purpose, he said, was to abolish useless offices and stages, and to substitute one public and one private office for a great number, as he had before stated—to prevent many of the frauds now practiced, by requiring the specifications to be much more accurate, and not merely vague generalities for the purpose of mystifying the public—to afford useful assistance to the law officers of the crown—to give protection from the date of application, by a provisional registration—to abolish the system of caveats, and to make all patented inventions easy of access to the public.

With this view, the bill provides for the reduction of the eight offices to the two, and whereas the cost in the first instance, now amounts to between £300 and £400, he proposes that for the sum of £5 a full specification may be deposited at the Great Seal Patent Office, and complete protection thus secured for six months, during which time the invention may be used or exhibited without the inventor running any risk of other parties taking advantage of the knowledge of his discovery. The cost of securing a patent for three years will be reduced to fees of £20 and £5 for stamps; at the end of which term another payment of £40 for fees and £10 for stamps will secure its extension to the end of seven years, when an additional payment of £80 for fees and £20 for stamps will be required. This mode of arranging the payment of fees will, it is presumed, enable the inventor to discover whether his patent is likely to prove profitable or not before he incurs the heavy expense of securing it. The plan has the advantage at least of most seriously diminishing the existing extravagant cost of patenting an invention before its merits can be practically tested; and though the fees are unnecessarily heavy, they need not be paid, at any rate, in full until there is a fair prospect of the patent realizing something for the inventor.

The other clauses of the bill are intended to obviate the chances of litigation, by providing more simple means for testing the validity of prior claims, or other objections. Lord Brougham, who has, perhaps, devoted as much attention to this subject as any man living, gave his testimony to the masterly manner in which Lord Granville had dealt with the question, and pronounced the measure to be an immense improvement on the present patent laws.

"This Bill," says the Manchester Examiner, "will, unquestionably, place the poor inventor in a better position, and enable enterprising ingenuity to secure, at a comparatively small cost, the means of practically testing whether or not the profit of a patent will prove proportionate to the expense necessary to obtain or extend it."

Many people here believe this bill to be a very excellent one—a great step in the right direction and a boon to inventors, aye, poor inventors, as the Examiner and the papers of this city (London) have been pleased to call them. But it is perfectly astonishing to me to see how far they are behind America. If an invention is the bona fide property of an inventor, why tax him so enormously for the parchment as a government acknowledgement of that right, for that is all a patent is. I heartily rejoice, however, at the prospect of the speedy passage of this bill, for it is no doubt a decided improvement on the old *ones*, for there are many. The whole cost of the patent fees for 14 years will be £175, nearly $900. Lord Brougham is a great friend to inventors, and the courts of England are decidedly terrible machines to worm up the pirates of inventions.

EXCELSIOR.

For the Scientific American.

**The New Motive Power.---Centrifugal Force.**

I read the description of Messrs. Sawyer & Gwynne's Pressure Engine, in your last number, as also your remarks upon the same. I wish to say a few words about that machine; but before I do, let me compliment the ingenuity that could so well arrange so much specious evidence, and also regret that it is not turned into another channel than that of humbug. As your reasoning fully showed the fallacy of the idea on established general principles, I would wish to point out where (if quicksilver acts as it always has done) the failure in practice will be found when such a machine shall be built and tried, (for I fancy that which should have fairly been done first by the inventors, has not yet been attempted).

In the first place, the machine is a perpetual motion—a fact carefully kept out of mention by Mr. Andrews—for once pump in the air to a pressure of 271 lbs. the inch and set it going, and it will go faster and faster forever. This condemns it at once.

Let us try it on another indictment. How replenish and maintain the air-spring at 271 lbs. the inch, when its tendency is to exhaust itself by pushing out mercury up into the screw? Answer: The centrifugal force of the basin will re-fill the air-spring with mercury. But does not the air-spring press every way equally, and will it not resist the mercury coming in, with the same force it pushes it out? And as just as much mercury comes in by the valves of the basin as goes out of the air-spring by the screw, will not the pressures balance each other? and can any motion be caused by the air-spring? I take it upon myself to answer, in this case, No, certainly not. The only motion the machine can have is that communicated by the crank outside.

Whether Prof. Loomis has signified his willingness to combat the reasonings advanced or not, I must say that it would not be hard to demonstrate, analytically on established principles, the utter inability of this engine to do what its sponsors claim it can. But why reason with these men on established principles? It is claimed that the machine itself is the demonstrator of the principle on which its motion depends, and therefore it only can be the demonstrator of their futility. Let the inventors, then, instead of basing new principles contradictory of the old upon the old, come fairly to trial by experiment. J. C. S.

West Troy.

[The gentleman who penned the above is a man of science—a first rate mathematician and civil engineer. It is perhaps enough for us to say that he graduated in that institution—celebrated above all others in our land, for the fame of its professors and the profoundness of their teachings—we mean "West Point." Our correspondent is right about the machine being *no go yet*. And according to the doctrines of Sir Isaac Newton, it never will. He says, in the Principia, that a vessel containing water, and having received a circular motion, the vessel, by gradually communicating its motion to the water, will make it begin sensibly to revolve and recede by little and little from the middle and ascend to the sides of the vessel, forming itself into a concave figure, and the swifter the motion becomes the higher will the water rise, till, at last, performing its revolutions in the same time with the vessel, it becomes relatively at rest in it.

Mr. Allen, of the Novelty Works, has called upon us and stated, as we believed, and as every body who knows him would, that he gave no countenance to the absurdity of this new motive power, of centrifugal force. We had no personal feelings to gratify, for with none of the parties were we personally acquainted, but as conservators for the public, it is our duty to expose such errors, more especially as there is so much sham both in high and low places at the present day. Our exposition has gone forth to the public, and the public is the umpire we have chosen, and in whose decision we have the utmost confidence. Nevertheless, being much pained to witness a great amount of ignorance respecting mechanical principles, we will, as soon as we have more time on our hands, endeavor by a few short essays, to disseminate clear and reliable information on the subject, by pointing out errors and upholding truths.

**Introduction of Rice into Carolina.**

A lady correspondent of the Charleston Evening News, gives the following account of the introduction of rice into Carolina, which must have taken place about the year 1693. She says—Now I will proceed, according to promise, to tell of the fortunate accident which occasioned the introduction of rice into Carolina,—a grain suitable to the climate and soil of the country. A brigantine from the island of Madagascar, touching at this town on her way to Britain, came to anchor off Sullivan's Island. The Landgrave, Smith, on an invitation from the captain, paid him a visit, and received from him the present of a bag of seed rice, which he had seen growing in the eastern countries, where it was deemed excellent food and very productive. The Governor most thankfully accepted and divided the small quantity between Stephen Bull, Joseph Woodward, and some other friends, who agreed to make the experiment, and planted each his parcel in a different soil; it answered their highest expectations. Some years after that, Mr. Dubois, Treasurer of the East India Company, sent a bag of seed rice to Carolina, which it is supposed by some gave rise to the distinction of red and white, others believe it to depend on culture.

**Colt's Pistols.**

Wilmer & Smith's European Times of July 5th contains the following curious statement: As several references have been made to arms of this description, it may be interesting to know that there is now in the United Service Museum a pistol, supposed to be 200 years old, which, with the exception of the lock, is constructed upon the same principle as the weapons exhibited by Mr. Colt, as will be perceived by the following description, extracted from the valuable catalogue of the Institution, published in 1843: "1,160—A snaphaunse self-loading petronel, probably of the time of Charles I. The contrivance consists of a revolving cylinder, containing seven chambers with touch-holes: the action of lifting the cock causes the cylinder to revolve, and a fresh chamber is brought into connection with the barrel. Six of the seven chambers are exposed to view, and the charges are put in without the need of a ramrod."

**Paxton nearly Burned.**

A short time ago, a dinner was given at Derby, to Mr. Fox, the gentleman who constructed the iron work of the Crystal Palace, and among the invited guests was Mr. Paxton. While upon the train from London, alongwith several other distinguished men, by some cause yet unexplained, the luggage upon one of the carriages of the London train took fire a few miles from Wolverton, and the flames descended rapidly into the carriage in which these gentlemen were travelling. Mr. Crampton, well known by his inventions in connection with locomotives, and also as engineer to the Submarine Telegraph Co., with a courage and self-devotion which are beyond all praise, left the carriage and proceeded along the steps of a number of the intermediate carriages to the engine, while the train was travelling at the rate of forty miles an hour, and signalled the engine driver at once to reverse the engine. The train was immediately stopped, when the scene of confusion and terror which presented itself may be more easily imagined than described. Had not Mr. Crampton acted as he had done, it is impossible to state the injuries which might have been sustained. Fortunately, however, they were but slight; a portion of the clothes and hat of Mr. Paxton and of Mr. Cochrane were burned, and the back portion of the head of Mr. Bass, M. P., suffered to some extent.

**Retort of a Witness.**

Mr. Buffum, of Lynn, Mass., in a patent case, was under cross-examination by an attorney named Lord, who did his best to perplex and brow-beat him so as to overset the testimony he had given against his client. The question was something relating to machinery, and Mr. Buffum had used the word "philosophically" in his evidence. Mr. Lord continually harped upon this phrase, and endeavored to make the witness ridiculous in the eyes of the jury. At last he inquired, "pray, Mr. Witness, as you seem to be a great philosopher, can you tell me what the consequences would be if the air should be exhausted from a hogshead?" "Yes, sir," replied Mr. Buffum, "the head would fall in." "Indeed, sir!" pursued the counsel, "and can you tell me, 'philosophically,' why the head should fall in first?" "Yes, sir," returned Mr. Buffum, "it is because hogsheads are like some lawyers—their heads are their weakest part!" The roar of the court room acknowledged the victory of the witness over the counsel.

**A Nut Uncle John Can't Crack.**

While Hobbs, the Yankee, is picking the patent lock of Chubb, the Cockney, at the Great Exhibition, with all ease, Herring, the Gothamite, is challenging the world, in the same line, most provokingly. He has one of his plain counting room safes in "the American quarter," over which is a sign, thus inscribed: "This contains two hundred sovereigns. The key is at the office of the United States Commissioner—at the service of any one, and the money shall be the reward of the person who opens it." Herring has posted off to France, leaving his safe thus labelled, and feeling fully confident that his gold is in the only place where it will be perfectly secure.

**Advantages of Steam Travelling by Land and Water.**

We see by the official returns of the shipwrecks of the United Kingdom of Great Britain during the past year, that the average is nearly two a day; and the amount, thus, four vessels only propelled by steam, and six hundred and sixty-eight sailing vessels of every description. The difference in the number of steam and sailing vessels afloat is far from the proportion of disasters. Navigation by steam is thus demonstrated to be much the safest. A commentator adds, "could the average of accidents of the last year in coach travelling be collected, we should probably find (equal numbers being allowed on both sides) that a similar disproportion exists between horse travelling and railway travelling.

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### Chemical Improvements Relating to the Arts.---Recent Foreign Patents.

We have here selected from "Newton's Repertory of Inventions," the "London Patent Journal," Mechanics' Magazine," and some other foreign periodicals, various specifications of patents recently taken out, but shorn of all the extraneous matter contained in them. The information will be found very useful to our dyers, bleachers, chemists, and our farmers, too. We have packed the matter in a very small compass, but have left nothing out that is essential; we are perfectly able to judge of such things.

Improvement in Fixing Colors.—This is the specification of a patent granted to Robert Johnson, of London. It is for fixing colors on fabrics made of cotton or other fibre, which consists of a method of isolating or extracting the coloring matter from madder or other plants, such as munjeet, &c., so as to render it fit for application directly to the fabric, instead of by the usual method of dyeing. The madder must be first converted into garancine, and then washed until all traces of the acid employed in the operation are removed. It is then dissolved in a hot aqueous solution, which possesses the property of taking up the color while hot and surrendering it when cold. When this solution has cooled, the color will be found in deep orange flakes, which are to be separated by filtration, and washed till free from acid, and tasteless. Several alkaline and earthy substances, in combination with free sulphuric and muriatic acids, possess the above property—the chloride of calcium and muriatic acid; but the patentee composes his solution of 10 lbs. alum, 1½ lb. sulphuric acid, and 10 gallons of water. The simplo abstraction and addition of heat is all that is requisite to admit of the same solution being repeatedly used.

The solvent influence of alum or alzarine (the coloring matter of madder), has been long known, and acid has been also employed to precipitate the coloring matter held in suspension. The patentee disclaims the alternate use of solution of alum and acid, but claims the application of a solution of alum with excess of acid or other acidified saline solution, capable by the abstraction and addition of heat, of being rendered again and again fit for use for extracting the coloring matter from madder and other rubiaceous plants. Also abstracting the heat from one solution to the other, or *vice versa*, as described in the extraction of coloring matter, in order to its being applied directly to fabrics of cotton, silk, &c.

The color may be fixed on the cloth by the use of an alluminious mordant. In this method the coloring matter is applied simultaneously with a mordant, and fixed by steam. When printed in this manner on unprepared cotton, the color yields to soap, but it may be rendered stable by preparing the cloth with an oleaginous mixture; the fine hue of the madder is not however fully developed, except the oil is previously oxidized, as in the Turkey red process. The preparatory mixture employed consists of 5 lbs. white soap, 5 lbs. gallipoli oil, and 10 gallons water. The cloth is padded in the mucilage, dried, "edged" for forty-eight hours in a warm room, rinsed in a solution containing 1 lb. of carbonate of soda to twenty gallons of water, and dried, when it is ready for the printing operation. A somewhat similar effect will be produced by a strong solution of soap. Any salt of alumina may be employed as a mordant, but the acetate is recommended. For printing, the patentee makes a mixture of ten parts of madder extract in paste, containing 10 per cent. of dry extract, with one part of pure acetate of alumina, of the strength of 25° Twaddel, and gum tragacanth to thicken. After the application, the cloth is to be hung up for a few hours, then steamed for half an hour at as low a pressure as possible, rinsed in an aqueous solution containing 1-1000th part by weight of an alkaline phosphate, washed and dried. The color will bear "raising" with weak caustic alkali, or lime, and will be improved by being "soaped," after "raising" and washed. The quantity of aluminous salt may be increased without a corresponding alteration in the color produced; but when the proportion exceeds 25 per cent. of a strength of 25° Twaddel, the color ceases to be fixed, even on oleaginous cloth, and resembles ordinary printed madder lake. By the substitution of a salt of iron, the red color of the madder may be modified towards a chocolate or black.

When dyeing with madder, according to the methods ordinarily in use for the purpose, the articles have to be subjected to several operations of soaping and branning, to brighten the colors and clear the whites; and in order to enable the color to resist these operations, a very large quantity of it is required to be used (while sometimes the madder is converted into garancine, when the whites will be clear and pure). Now the patentee has discovered that an equally valuable effect is produced—1st, by reducing the quantity of coloring matter 25 per cent. below that absolutely required where the clearing processes are employed; and, 2nd, by padding into the dyed piece some bleaching agent, and then drying it over the flue of the padding machine, or the tins of the dressing machine. The ordinary "clearing powder" (chloride of lime) is suitable for the purpose, but hypochlorite of soda is recommended and may be obtained for the purpose by adding to a solution of chloride of lime a solution of soda crystals (carbonate of soda), until the lime ceases to be precipitated. Fifteen parts of this solution, at a strength of 10° Twaddel and eighty-five parts of water, constitute a mixture adapted for padding into the cloth.

The operation of dyeing is performed in the following manner, but with the reduced quantity above mentioned; the patentee, however, prefers to treat the madder for four or five hours with water heated to 120° or 125° Fahr. The soluble yellow coloring matter will be then converted into a red color (alzarine), and pectic fermentation will commence, and the mass, when fermented, will be found to contain pectic or petosic acid. The coloring matter is employed in the fermented state, to economise time, labor, and fuel.

This portion of the invention relates to a method of obtaining clear whites and bright colors from spent madder without previous heating by steam or otherwise—*i. e.*, without converting the madder into garancine. The madder is to be treated with dilute muriatic acid according to Steiner's process, (described on page 107, Vol. 6, Sci. Am.) till all the salts of lime are removed, when it is introduced into the dye vessel with enough of an alkaline carbonate to impart a reddish tinge. The color is taken up by the mordants, but the whites are bad, and this renders Steiner's process of comparatively little value. By adopting the above-described method of procedure, the whites are rendered pure and clear.

Mr. Johnson describes finally a mode of obtaining a topical color from the alkanet root (*anchusa tictoria*) by digesting it in oil of turpentine, naptha, or other cheap essential oil, and adding one-eighth of its volume of caustic baryta, or of a salt of baryta and caustic ammonia. The coloring matter will be seized on by the earth and separated from the essential oil, leaving it fit for another operation. The deep indigo blue mass of color and earth is then to be neutralized with acetic acid, and when printed on aluminous cloth will produce a fine purple color. Or the acetic mixture may have a mordant added to it in the usual way of printing with topical colors, and applied on oleaginous cloth perpared as before described, when a rich purple will be produced resisting soap and alkali.

To the great majority of our readers, the above is no doubt obscure, but to chemists in calico print-works, and to good dyers, especially those acquainted with Turkey Red process, it is as plain as A B C, and is very valuable,—worth more than a year's subscription to many of them.

Improvement in Making Indigo for Dyers.—In the ordinary process of making soluble indigo blues, the sulphate of indigo is dissolved, and the blue is abstracted from the solution by hanks of wool or woolen cloth boiled in it, after which they are washed in alkalized water, to remove the water and obtain it in a separate state. This process is practiced where the colors are required to be very pure. The woolen cloth, however, does not give up its color readily to the alkaline solution, and eventually the alkali destroys the cloth, reducing it to a mucilaginous state.

Jean A. Marnas, a dyer of Lyons, France, recently obtained an English patent for the improvement of using flock wool—shearings of cloth; this is the whole improvement for which the patent was granted. It has no doubt cost this gentleman about $800 for his English patent—and it strikes us (although we cannot lay our hands on the information at present) that flocks have been practically used for the same purpose before, in large manufactories. We have at least seen them used in experiments quite a number of times.

Improvements in Dyeing Hanks of Wool, Silk, and Cotton.—Mr. Charles A. Kurtz, of Cornbrook house, near Manchester, England, recently secured an English patent, for the following method of dyeing zebra, or variegated skeins. The hank or skein is tied into a great number of slip knots and placed in a green or scarlet dye-bath. When sufficiently dyed, it is removed and washed. Where it has been tied, it will be white, except at the edges where there is a succession of shades. If another color is required on the hank, fewer knots are tied leaving portions of the white exposed, while all the rest is tied up, and the same process is repeated in a dye bath of a different color. A number of colors, and various shades, may be dyed on one hank, by this process. This may be new to many of our readers, but the process is well known among the good wives of our farmers. The patent, however, must have cost at least $800,—it would be of no value in America.

Chemical Improvement in Treating the Fleeces of Sheep.—A patent was granted to Mr. Smith of Deanston, Scotland, an eminent inventor well known in America, since deceased, for coating the fleeces of sheep with a water-repellent composition. The patent was enrolled on the 11th of last month, in London, by A. Mein, of Glasgow. The composition is as follows:—A bath is made up of 20 lbs. of alum dissolved, and diluted in 45 gallons of water. Into this solution a sheep is dipped by two persons, who keep its head out of the liquid. The sheep is then allowed to dry. Another bath, containing dissolved soft soap, 31 lbs. dissolved in 45 gallons of water, is kept ready, and the sheep gets the second dip in this after which it is left to dry, when the fleece will repel rain and wet. A trough capable of containing twenty gallons is suitable for the dipping: the other twenty-five gallons is put in by a quartfull for every new sheep that is to be dipped: the above quantity will answer for 100 sheep. It is stated that in all cold, moist climates, sheep thus treated will be much healthier. The composition is a water-proof one, and it makes no matter whether the sheep is dipped first in the alum or the soap. Hard soap dissolved is better than soft soap.

Improvement in obtaining Products from Ores of Metals for Dyeing, &c.—Mr. John Swindell, of Manchester, recently obtained a patent in England for the following method of treating metal ores:—

1st, to obtain copper and silver, or copper only, from their ores according to this invention, the ores are first roasted to drive off the sulphur and convert the metals to the state of oxides, after which the prepared ores are placed in tanks, and a solution of ammonia or its salts, of a strength of about 0·980, pumped on in sufficient quantity to saturate them. This solution is removed at the expiration of twelve to twenty-four hours, and will be found saturated with the metallic oxides, which are to be dissolved in boiling water and precipitated—the silver by hydrochloric, and the copper by hydrosulphuric acid or otherwise.

2nd, the ore from which zinc is obtained is the native sulphuret, which is mixed with about its own weight of common salt (for which muriate of potash, or of any earth, may be substituted), and exposed in a calcining furnace to a slow protracted heat until all the sulphur present is converted into sulphuric acid. The products of this operation will be sulphate of soda, muriate of zinc, and muriate of iron, which are to be dissolved out in boiling water, and the two latter precipitated by lime or other means after the sulphate of soda has been separated in the usual manner. The oxide of zinc, when thus precipitated, may be smelted in the ordinary way.

3rd. In treating chromium (chromate of iron), the ore is pulverized and mixed with common salt, muriate of potash, or hydrate of lime, and exposed in a reverberatory furnace to a red or even a white heat, the mixture being stirred every ten or fifteen minutes, and steam at a very elevated temperature introduced during the operation until the desired effect is obtained, which may be ascertained by withdrawing a portion from the furnace and testing it, as customary. The products of this operation are finally treated in the manner usual for chromic and bichromic salts.

The mixture of chromium and common salt produces chromate of soda, the greater portion or perhaps all of the iron contained in the chromium, being absorbed by the hydrochloric acid evolved from the salt, and carried off in the form of sesquichloride of iron. From the first mixture is manufactured pure bichromate of soda, which, by the addition of hydrochloric acid, may be converted to a chloromate; and from the last, or lime mixture, is produced a chromate of that earth, from which, by the addition of soda or potash, there may be obtained a compound salt.

### For Farmers.

To Have Green Peas and Corn in Winter.—The mode of preparing peas is to pick, when of the proper size for eating, shell, and and carefully dry on cloths in the shade. All the care necessary, is to prevent them from moulding; this done, they will be fine and sweet the following spring. Beans may be preserved in the same way, and with perfect success.

Green corn may be preserved in the following manner: pluck the ears of green corn when fit for boiling, strip off the husks, and throw the ears into a kettle of boiling water; leave them in until the water boils over them, when they must be taken out; shell off the corn by running the prong of a fork along the base of the grain, holding the ear with one end against the breast; this is more expeditious, and saves all the grain, including the heart or germ, which is the sweetest part.

After being thus prepared, it must be spread out thin, on cloths, in a shady, airy place, to dry; it should be stirred every day until dried thoroughly. When cooked it should be put in cold water, and boiled an hour or more, the water to be pretty well boiled off. When the water is nearly off, a little milk added to it will improve the taste.

A New Variety of Sweet Potato.—A valuable addition has lately made to the varieties of the sweet potato in Alabama, supposed to be from Peru. A letter describing it says:—

"It is altogether different and equally superior to any variety of this root hitherto known. It is productive, and attains a prodigous size, even upon the poorest sandy land, and the roots remain without change from the time of taking them out of the ground until the following May. The plant is singularly easy of cultivation, growing equally well from the slip or vine, the top or vine of the full-grown plant being remarkably small; the inside is as white as snow. It is dry and mealy, and the saccharine principle contained resembles in delicacy of flavor fine virgin honey."

### Strange Surgical Operation.

The Cincinnati "Nonpareil" says: "Dr. Muzzey was called on one day last week to perform a singular operation upon the head of a young lady living on John street. It appeared she had been in the habit of twisting and tying her hair so tightly, that the scalp had become parted from the scull, and it was found necessary to open the scalp to remove the matter which had accumulated beneath. This is the first case af the kind we have ever known."

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# New Inventions.

### Improved Seed Drill and Cultivator.

The agricultural interests of our country are greater than any other, but they cannot be dissevered from the mechanical—the farmer and mechanic are twin brothers—for while plowing and sowing are agricultural operations, these operations cannot be performed without mechanical implements, (the sowing may be done by hand, but it must be covered by the harrow). Within a few years great attention has been devoted to sowing grain by machines in drills, and a great number of improvements have been made to sow the seed correctly. Not many years passed since no such machine as a seed drill was used throughout the whole extent of our broad domain,—now such machines are very common. It is said that wheat and all kinds of grain sown with a drill, yield better crops, and the quantity of seed to the acre can be regulated to a nicety; one thing is certain, the sowing is uniform.

Francis Vandoren, of Adrian, Co. of Lenawee, Mich., has applied for a patent for a very simple but good improvement on drills for sowing broadcast. A cylinder with longitudinal buckets, revolves in the seed box, and each bucket, as it revolves, carries down a certain amount of grain below the bottom of the seed box, where it is discharged through a sieve or spreading wires, evenly upon the soil.

### Improvement for Blinds of Windows.

In conversation with a friend, a few evenings since, he incidentally mentioned that he had seen no improvements whatever made in Venetian blinds, and thought it would be well for us to call the attention of our inventors to the subject. He, at the same time, mentioned that he thought good blinds could be made of cast iron. While reading the London Mechanics' Magazine, this week, we noticed that a patent had been granted, on the 30th of last November (but only enrolled on the 4th of last June, 1851), to H. P. Burt, C. E., of London, for the very improvement hinted at, viz., cast-iron Venetian blinds. His claim is for making laths of iron or metal, embossed, corrugated, or simply curved, perforated, and painted or japanned, according to taste. He also claims an arrangement for raising and lowering such blinds, and preserving the parallelism of the laths, without the multiplicity of cords generally employed. We do not know what this arrangement is, but we hope the hintwil not be lost to our inventors. Venetian blinds cost five shillings per foot, and poor miserably constructed things they are at that.

### New Cannon for throwing Chain Shot.

Mr. Adam Lemmers, of Newark, N. J., has invented and taken measures to secure a patent for a new method of throwing chain shot which will carry terror into the bulwarks or camp of the foe. It consists of a cannon constructed wit two bores describing an angle, into each of which is put a ball—the two being united by a chain. It will be evident that when the cannon is discharged, the balls will stretch out the chain according to its length and the angle of the two barrels of the cannon, this will sweep down masts and rigging in great style.

The gun is so arranged on the carriage that the barrels can be turned so as to discharge the chain in a horizontal or vertical direction.

### Improved Plow.

Mr. Geo. A. Walker, of Annville, Lebanon Co., Pa., has applied for an improvement in securing the point of the self-sharpening plow, and the point is so constructed and arranged, that when it wears dull it may be taken out and reversed, the edge that was uppermost being placed underneath, as the shank fits either way in a recess for that purpose.

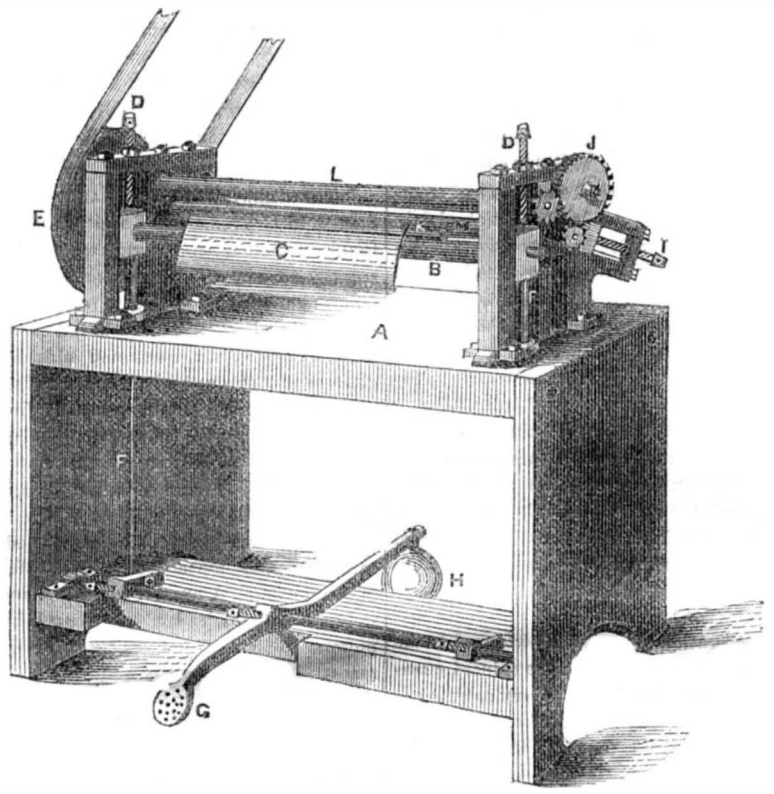
### Improved Lock.

Mr. Conrad Liebrich, of Philadelphia, has invented and taken measures to secure a patent for an improvement in Locks, which, by a very simple addition, prevents the lock from being wrenched or torn off; and it also obviates the necessity of having a back plate to the lock. The lock is provided with a guard on the ledge, which is formed on the upper part of the plate by bending down the inner edge of the ledge. The hasp of the lock is kept from uneven play and cannot be easily pried or twisted off by burglars' tools.

### Improvement in Steam Boilers.

Mr. J. W. Richards, of this city, has invented and taken measures to secure a patent for an improvement in steam boilers, consisting of tubes within the steam room or upper part of the boiler, through which tubes the steam is made to circulate prior to its exit for furnishing the supply to the cylinder of the engine, in a drier and more elastic condition, and to prevent the water being carried into the steam chest by priming.

## IMPROVED MACHINE FOR ROLLING UP SHEET METAL PIPE.




This machine is the invention of Mr. Wm. Ostrander, of this city, and is patented by Ostrander & Webster. It consists of three rollers, L M B, (the same as ordinary stovepipe rollers); J is an independent pinion which mashes in the smaller ones fastened to the rollers, L and M, which gives them both the same line of motion; the roller, B, is raised or lowered by the treadel, G, in connection with F F, upon which rest the boxes of B. D D are set screws to adjust the height and pressure of B; I is a set screw, which raises or lowers M, which regulates the space between L, M, and B. K is a mandril constructed of wood, upon which the pipe is formed, it is covered with the same material that is desired to be rolled or formed up by the machine, the seam or joint left unsoldered, in which the sheet, C, is placed, and there held while being formed between the three rollers. E is the pulley and belt; A is the bench; H is a weight which is used only when the machine is worked by a crank. The operation by steam is as follows: the rollers, L and M, are in constant motion, the mandril, K, is taken out from the three rollers, and the edge of the sheet, C, to be formed, is slipped between the mandril and its covering; it is then laid in the space it occupies as represented in the engraving; the foot is applied to G, which raises the roller, B, until the mandril, K, is brought in contact with L and M; the three rollers, together with the mandril, are revolved, and the sheet, C, is drawn in and formed closely about the mandril; the foot is then removed from G, which allows the roller, B, to drop down, and permits the mandril, K, to be taken out and the newly-formed pipe to be slipped off, whose edge, in nearly every instance, will be "laid" close enough for soldering: should the metal be so stiff and hard as to prevent its edge being laid in the first rolling, it will be perfectly so when rolled a second time on the bare wooden mandril. This roller is capable of forming up from three to five thousand feet of pipe per 10 hours, in 20 inch joints, by a boy. It does not require the use of mallets, to lay the edges. It can be made as long as any sheet of metal requires, inasmuch as the rollers can be braced from the outside without being interfered with. It can be used in the old way for stovepipe, &c., by removing the pinion, J, up out of the way, and bringing the rollers, L M, close together.

This machine is now in practical use by Woolcock & Ostrander, No. 57 Ann street, N. Y., who make large quantities of speaking and other pipes with it. Rights may be had at very low prices by applying to Ostrander & Webster, 57 Ann street, N Y.

### Improvement in the Photographic Art.

Mr. Talbot, who is well know for his improvement in the photographic art, has just announced another which enables him to obtain images of objects moving with a certain velocity, a thing found impossible heretofore. One of his experiments is thus described:—"A paper covered with printed letters was pasted upon a disc, so arranged that a rapid rotary motion was capable of being imparted to it. A *camera obscura*, in which was placed a plate of extreme sensibility, prepared by the peculiar method of Mr. Talbot, was so disposed as to receive the image of the disc in motion. Near the disc itself was placed a powerful electrical battery. The room was darkened by closing all the shutters. The disc is made to rotate as fast as possible, then the *camera obscura* is opened, and immediately by means of the electrical battery, an instantaneous vivid flash of light is thrown upon the disc. The plate is then withdrawn from the *camera obscura* and proves to have been impressed with the image of the letters on the disc, in a perfectly distinct and faultless manner, absolutely as if the disc had not been in motion at all." Mr. Talbot's experiment overcomes the double difficulty presented by an instantaneous flash of light producing the image and the velocity of the rotary movement of the disc.

### Iron Veneering for Fronts of Buildings.

Mr. L. A. Gouch, of Harlem, has invented and is now applying a new improvement in arebitecture. This is ornamental cast iron plates put on the front of a house, like veneering on cabinet work. The castings are made in the plates and put on by a permanent elastic cement which allows for the expansion and contraction of the metal. The plates can be sand-grained after they are put on and a house can, at but little extra expense, be ornamented by this improvement, with all the embellishments of the richest scroll and frieze mouldings, to rival the most ornate sculpturings of the Grecian or Italian schools.

### The Art of Flying---A Wonderful Feat.

A French journal has a letter from Madrid giving an account of a successful experiment with a new apparatus for flying. The flyer was a Miss Juanita Parez, who though rather fat and corpulent, moved through the air, by the help of wings, with great ease and rapidity. She was advertised to fly a distance of above 1,200 feet, raising above 600, but exceeded the programme both in height and distance. No description of the structure of the wings is given. They have a spread of some fifteen feet, are fastened by ligaments of great flexibility, and arranged so as to move with great rapidity; they make a noise like a wind-mill. The astonishment at Madrid at so novel a phenomena is described as immense, and no wonder: just to think of a corpulent damsel flying through the air and making a noise like a windmill. The same paper announces that a Mr. Thomas Darville, at Paris, has invented a complete apparatus for flying, and that he proposes to exhibit it at the Champ de Mars in the course of the present month, when he will fly from the Military School to Challiot. He will be accompanied by his two sons, one of twenty-two and the other of seventeen years. The preparation of three sets of wings has delayed the exhibition until now. The inventor has tried his apparatus privately, with complete success, having flown across the Seine with it at 1 o'clock in the morning. His wings have a spread of 15 feet, and by their help the flyer can move up and down in the air with all the facility of a swallow, skimming along near the ground or mounting upright to the sky at his pleasure.

A balloon is now in the course of construction near New York city; it will perhaps make an excursion some day shortly. We hear that it is to be propelled by 2 small steam engines. It will take the wind out of the Spanish and French high flyers. These are the days of highfaulting.

### Polley's Plan of Opening and Closing Shutters and Blinds.

Mr. Henry Polley, of Leominster, Worcester Co., Mass., who applied some time ago for a patent for an improved method of opening and closing shutters and blinds by rack and pinion arranged in a very excellent manner, has applied it to a great number of window blinds and it has, we are informed, given universal satisfaction, his method being considered by those who have used it superior to others in use.

### Improved Water Wheel.

Mr. Wm. A. Crowell, of Lime Rock, Litchfield Co., Conn., has taken measures to secure a patent for a new water wheel, which has been stated to have some advantages over others in use. This improvement is in the construction of the buckets.

### Discovery of a New Metal.

Dr. Bergemann, in making some experiments with the Woehlerite and Enkolite from the zirkon-syenite of Brevig, in Norway, has separated a substance which, both in its oxidized state, as well as in its compounds, differs from all the known simple bodies. He has decided that it is a metallic substance and has given it the name of donarium, after the Teutonic god Donar, the Northern Thor

### The Vulcanizing of India Rubber.

We see by the London Athenæum, as copied in the Franklin Journal, that the discovery of Vulcanizing India Rubber is claimed for Mr. Hancock, of London, in 1843. Our account, last week, of the India Rubber Patent Case, in London, proves the discovery to be an American one:—"honor to whom honor is due."

On last Saturday evening our city was visited by one of the most terrific thunder storms we ever witnessed. One man, we hear, was killed by the lightning. The air since has been cool and refreshing in comparison to what it was last week. Storms purify the air and restore electtical equilibrium.

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Scientific American

NEW YORK, JULY 26, 1851.

### A Summer Tour.

Why should Americans not boast of their free and happy home; we have the best railroads in the world and the most of them; we have the finest and fastest steamboats on our rivers and lakes, and the greatest steamships on the ocean. Our scenery and natural curiosities are unequalled, our agricultural and mineral resources are unlimited, and our mechanical productions are not surpassed by any nation whatever.

A few days since, we had occasion to travel on the Erie Railroad, and to witness the mighty works which have been accomplished in extending it from the Highlands of the Hudson—the Atlantic Ocean, it may be said on the east—to Lake Erie, (460 miles) on the west; carried over rivers and mountains, through ravines and valleys, now shooting along the precipice, now leaping a yawning gulf, is enough to astonish any one but an American—who is a believer of the *nothing impossible* character. Should any of our city readers desire to take a pleasure trip into the country during these sweltering days, let us give him a few words of advice, about how and where he should travel to, in search of pleasure and profit, we allude to a trip to Niagara Falls, via Erie Railroad to Elmira then from that place on the railroad to Jefferson, cross the Seneca Lake to Geneva, and from thence by the railroad to Rochester. Here stop and visit the Genesee Falls, fameus for the feat and death of poor Sam Patch, but more famous as a water power which drives more flouring mills than any other in the whole world. Some of these mills grind more than 5,000 bushels of wheat daily, manufacturing more than 1,000 barrels of flour, and do not be astonished when you are told that 20,000 barrels are turned out every day in the city.

After seeing all the places of note in Rochester, take the railroad to Buffalo, a city which, by-the-bye, exhibits, on a small scale, much of the activity and energy of New York. Stop there over night and take the cars next morning for the falls, a pleasant ride it is, along the Niagara river, where you will see fort Schlosser, so famous in story during the late *pat-riot* war. You must at least spend one entire day at the falls, and if you are not too full of *hauteur*, we would recommend the "Falls Hotel," where you will find a gentlemanly landlord, good snowy beds, and plenty of the best of *provender* as Dalgetty would say, to invigorate the whole man—important considerations to the tourist and traveller.

The chief attraction of Niagara, is the giant cataract, leaping, thundering evermore. This is the forum to which the waters of the rivers and ocean lakes of North America, have come centuries for to declaim, and they will do so for centuries more, and what a *voice*, how terribly grand is its eloquence, no man can hear it uninspired with awe.

Do not fail to visit Goats Island from the American side, nor to ascend the stone tower on the adjacent Island. Here you can gaze over the edge of the cliff down into the fearful chasm, and see the conflict of the waters below. After this, the lover of daring exploits should descend the Nick Biddle Staircase, and take a cold shower bath in the cave of winds.

Returning from the Falls do not fail to take a good dinner before you start in an apology for a car, labelled to the "suspension bridge," and "Maid of the Mist." A few minutes will bring you to the Maid, one mile below on the river, where you will find the charming lass dressed up and waiting to receive you. This lady is a neat little steamer with powerfull engines, which will take you nearly under the very falls. It is so skillfully managed that no danger need be apprehended; the trip is a very exciting one.

Returning to the place from whence you started, you proceed a short distance to the Suspension Bridge—the controversial bridge—and of course you will desire to cross over to the dominions of the Island Queen, Victoria. [Be somewhat careful of the collector of tolls on our side of the ditch—Ellis, we believe, is his name; he may get a second two shillings out of you on returning, if you are a green one; this he is not, we believe, authorized to do by the Company. If you refuse to pay twice you may be collared and insulted. We would advise the stockholders of this bridge to employ a gentleman—a man of courteous manners—to collect the tolls—one who never would demand double tribute of strangers. Excuse the digression as a necessary caution.]

Having set foot on the Canada shore, take a carriage for Lundy's Lane and the Burning Spring. This spring emits carburetted hydrogen gas, which, on being touched with a match placed over the water, is ignited, and will continue burning until it is purposely extinguished. When there, the benevolent wish arose spontaneous, "what a spot for Mr. Paine to try his water gas experiments."

After visiting the three places mentioned, you can return by the bridge, refuse to pay the extra twenty-five cents, and get insulted, or you can take the little ferry-boat below the Falls and cross in safety. On leaving Niagara Falls, take the cars for Lewiston—early in the day is best—so as to visit the Lewiston Suspension Bridge, a noble structure, erected by Mr. Serrell, C. E., of New York City. At Lewiston you take the steamboat,—and here, let us say, that in all our travels, and that is *some*, we have never found so many fine boats belonging to one ~~line as on that of the Ontario~~ and St. Lawrence Steamboat Company. The captains, engineers, and many of the other officers on this line of steamers, are stockholders, part and parcel of the company, and from the kind attention you will receive, you cannot but feel that they have a special regard for your welfare.

We had the pleasure of taking passage on the steamer Ontario, commanded by Captain Throop, and in conversation with him concerning the capacity of the steamboats on the line, such as the power of the engines, &c., he made the remark that he had been on Lake Ontario over fourteen years, and during the whole of that period, not a single person had been injured by an accident, nor a boat seriously damaged. We mentioned our surprise at the information, considering the distance they run (from Lewiston to Montreal); he said, "we have none other than good boats, and our engineers are all careful and experienced men, most of them having been in the company's employ for 8 or 10 years, and besides, most of them are stockholders—they have an equal interest in the character and proper management of the boats, with the larger proprietors." In the engine room of the Ontario, we saw the "Crank Indicator," that beautiful invention patented by Mr. Hutchings, first engineer. We trust we shall be able to present an illustrated description of this invention before our readers, erelong, and will therefore say no more about it at present. You must go to Montreal and visit the famous Cathedral there, not forgetting to take a look at the red coats, a remarkably civil set of fellows since '76 and 1814. From Montreal, return by Lake Champlain and down by Albany on the Hudson—the romantic Hudson—to New York. After you have returned, enjoyed a night's sleep, and partaken of a comfortable breakfast, we have no doubt but you will at once proceed to our office, and thank us for recommending you to take such a tour.

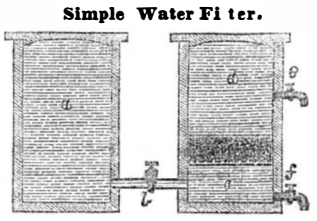
### Patent Washing Compounds.

We have received two letters from correspondents about a receipt published on page 340, No. 43, Scientific American, for making a washing compound. Our correspondents say that it is the same as Crane's patent, and both ask if Crane's patent is a swindle. We made no comments upon the receipt, and the name of Crane was not mentioned in it. Crane claims, not the ingredients, but the ingredients in the proportions specified in his patent. For our own part, we prefer good hard old soap to the mixture spoken of.

### Cast Iron Houses in China.

The Glasgow Engineers' Magazine states that Mr. Gutzlaff mentioned in one of his letters, in 1843, that the art of constructing buildings of cast iron has been known in China for centuries. He found a Pagoda composed entirely of cast iron, it was covered with bas reliefs, and inscriptions which, from their forms, character, and dates, showed they were as old as the dynasty of Tang,—as far back as from the 5th to the 10th century of the christian era. The pagoda was of an octagonal pyramid shape, 40 feet high, 8 feet diameter at the base. It had seven stories and was adorned with many curious pictures.

### Simple Water Filter.




Having received a very unassuming but sensible letter from a correspondent respecting the plan of a simple filter, we thought that we could not do a greater service to our readers than by getting up the accompaning engraving, and publishing it along with a few of our correspondent's remarks.

The engraving is a vertical section of two casks placed beside one another, and united by a connecting pipe, *l*, having a faucet on it; *a* is the reservoir cask, or it may be a tight box, in which the water to be filtered is let in; the other is the filtering cask. This cask has a false bottom a little above the true one; it is perforated with holes and covered with flannel. On this is laid clean sand and charcoal, to the depth of eight or ten inches. The water comes from *a* to *c*, and passes up through the filtering medium to *d*. The filtered water is drawn off by the faucet, *e*. The faucet, *f*, is used for the purpose of cleaning the filter, which, in this case, is much easier done than in those filters in common use, where the water to be filtered passes down—not up—through the filtering mediums. To clean the filter, fill both casks and turn the faucet *f*.

Our correspondent informs us that in many of the factories in England a filtering apparatus, like the above, is employed for purifying the waters which supply steam boilers: it is found that, in a measure, incrustations are prevented from forming.

### Iuventors' Manual.---Legal Principles of Patents.

This is a new and able book, by George Ticknor Curtis, Counsellor at Law, and is published by Phillips, Sampson & Co., Boston. The author is well known for his large work on Patents, published in 1849. This book is smaller, but it contains information relative to assignments and licenses which cannot but interest many of our readers. It has been supposed by many that the ownership of a patent right to make, vend and use for a specific district, such as New York, went farther than the limitations of the assignment. For example, if a person in Rhode Island possessed the sole patent right for that State, and another person that of New York: a citizen of Rhode Island cannot purchase the article, machine, or whatever it may be that is patented, in New York, and use it in Rhode Island, without being liable to the owner of the right in Rhode Island. Many have thought otherwise, and we have had quite a number of communications on this very subject. In connection with this, there is one paragraph in this work which renders the question somewhat ambiguous: it is this, page 197—"The Supreme Court of the United States have decided that an assignment of an exclusive right to use a machine and to vend the same to others for use, within a specified territory, authorizes the assignees to vend elsewhere out of that territory, articles manufactured by that machine." Has not any person a right to vend anywhere the articles made by a patented machine—the articles not being the subject of a patent? This is a subject the public should understand clearly. We believe that any person can sell anywhere the articles produced by a patented machine, but no person has a right to make, use, or vend a patented machine, anywhere, without the authority of the patentee or assignee of the district in which the machine is. The selling of a machine by a patentee, without any conditions, implies the right of the buyer to make, sell and vend it, and any person can use the said purchased machine.

This book of Mr. Curtis is a very able one, and contains a vast amount of useful information on the subject; it is truly an Inventor's Manual.

### Is this a Patentable Subject?

MESSRS. EDITORS—I wish to know whether you think that a patent could be procured for the use of clay as an oil paint? I have a friend who has spent some time in experimenting on paints, and has finally succeeded in producing a fire and water proof paint from the common clays by mixing them with oils. He applied for a patent in 1849, but the application was rejected on the pretext that ochre had been used as a paint. I see no reason why the patent may not be obtained. Suppose ochre has been used, can a patent not be obtained for the use of clay—the common clays of the country? The object of the inventor is not to use it in fine paintings, but as a paint for buildings, roofs, walls, fences, and machines, all coarse painting, but not as ochre is used. Yours, C. H. L.

[We have seen clay used for printing drabs on paper for rooms, but never have we known of clay being used for a paint. If it cannot be proven that clay was applied in the same way and for the same purpose before this—that is, if the Patent Office, cannot show such evidence, a patent should be granted—it should not have been refused by the Patent Office without such testimony of previous use being in the possession of the Examiner. Mr. Blake received a patent for just such an application, and it is certainly wrong to grant a patent to one and reject another upon the very same grounds. This is not just. We hope this will receive the candid consideration of the Examiners—let there be a generous consideration of claims, and a uniform system of action, and we will never have to chronicle such partial action.

### Iron Buildings in New York City.

Within the past two years, a great number of cast iron buildings have been erected in our city. The designer and constructor of these buildings is Mr. Bogardus, the well known inventor, who may well be termed "the man of Iron Genius." His iron houses are manufactured in an iron edifice in Centre street, this city, where the business is now conducted under the firm of Bogardus & Hoppin, the latter a gentleman of exquisite taste and genius also.

A great number of our new *free stone* and brick buildings have cast iron fronts on the first stories. The castings are beautiful, and we are glad to see this metal so plastic yet so durable and strong, coming into more general use.

On 32d street, near North River, is an iron tower in course of erection for the purpose of an observatory, and an alarm bell. The spot is itself rather elevated. The foundation is laid 14 feet below the surface of the ground, and is supported and braced with iron shafts sunk in solid rock. The building is entirely open between the columns, thus offering but little resistance to the wind; and such is the weight of material, that when done, a pressure of 14,000 lbs. would be required to move either of its sections or stories from the perpendicular, were they not fastened at all.

This tower, when done, will be about 100 feet high, commanding from that elevated point a distinct view of nearly the whole city and island. It is to be surmounted by an observatory, where a watch is to be kept subject to direction of the Fire Department. The ascent is to be by a winding staircase on the inside and it is to be completely fire-proof.

The greatest sale which any journal ever attained, is probably that of the number of the illustrated London News containing the account of the opening of the crystal palace. About one million of copies were sold, which at the retail price, would amount to $125,000.

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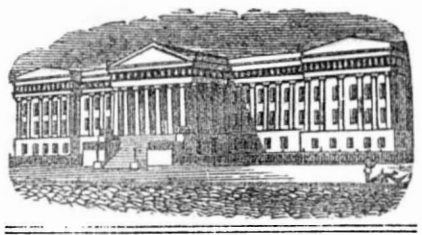

☞Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

## LIST OF PATENT CLAIMS
### Issued from the United States Patent Office.
FOR THE WEEK ENDING JULY 15, 1851.

To John Boardman, of Little Valley, N. Y., for improvement in Washing Machines.

I do not claim the constructing or using of a revolving wash barrel with or without a rolling or tumbling pounder therein, but I claim the peculiar form of the revolving barrel with its fluted semi-cylindrical recesses in combination with a pounding frame constructed with a weighted hub and three parallel pounders as described.

To J. M. Bottum, of New York, N. Y., for improvement in securing pinions, &c., of watches in lathes.

I claim the employment of adhesive cement for securing staffs and pinions of watches or time pieces for lathe operation, in combination with a chuck, and a sliding tube, and a female centre, as described and set forth or in any manner substantially the same.

To E. K. Browning, of Utica, N. Y., for improvement in machines for cutting wood into shreds and crimping them for mattress stuffing, &c.

I claim the use of the splitters with the plane iron and the holder, and the movable weighted lid, or any thing which is substantially the same, combined and arranged in the plane stock, F, for the purpose of producing the article herein described.

To S. A. Clemens, of Springfield, Mass., for improvement in machines for dressing Sisal, Hemp, &c.

I claim the hinged jaw connected with the driving shaft, substantially as described, in combination with the cylinder to which it is hinged, and provided with a corresponding jaw substantially as described, whereby the driving power, in carrying around the substances to be dressed, clamps and holds them firmly during the entire operation as described.

I also claim, in combination with the cylinder and clamp for presenting and carrying around the substances to be dressed, as described, the knives and combs attached to one or more hinged bars, and provided with the necessary means for operating them, substantially as described.

I also claim, in combination with the cylinder, as described, the vat of water in which, at each rotation of the cylinder, the substances to be dressed are immersed, substantially as described.

To S. G. Dugdale, of Richmond, Ind., for improvement in Churns.

I claim the application of the spring wire, which connects the crank with the dashers, in the manner and form, and for the purpose set forth.

To Oliver N. French, of New London, Conn., (assignor to himself and Ebenezer Stevens, of Hopkinton, N. H.,) for improvement in Axle Boxes for Journals for Railroad Cars.

What I claim is to support the case on the bearing by two projections or analogous contrivances, applied to its sides, in combination with making the top plate of the case, and the cap or side plate, in one piece, separate from the rest of the case, and holding them in place by recesses and projections or analogous contrivances, substantially as described, the whole being to enable me to entirely dispense with the use of the screws or nuts in the construction of a railway car axle box, and thereby avoid not only the injurious consequences which frequently result from their becoming loose, but also the necessity of that care and attention on the part of the carman or attendant, so necessary when boxes are used having any of their parts secured by screws.

To G. L. Haussknecht, of New Haven, Conn., for improvement in Carriage Springs.

I claim the employment of a semi-eliptical spring, in combination with a C spring formed by the extension of one of the arms, the combined springs thus produced being set transversely with the axle and attached thereto, and the body of the vehicle in the manner substantially as described.

To Harman Hibbard, of Henrietta, N. Y.,, (assignor to J. A. Hibbard), for improvement in Buggy Tops.

I claim the mode of connecting carriage tops with the seats by means of the bearers and clasp, so that they may, with facility, be removed from one carriage body and applied to another, in the manner substantially as described.

To Lewis Lillie, (assignor to J. W. Bates), of Troy, N. Y., for improvement in Fire-Proof Safes.

I claim the combination of wrought and cast-iron; the same forming a safe in the manner and for the purpose substantially the same as described.

To D. C. McCallum, of Owego, N. Y., for improved means for adjusting the effective length of bridge counter braces.

I claim the method of lengthening or shortening the counter braces of a girder or bridge truss, so as to produce and maintain any desired vertical strain or deflection of the girder or truss, by means of the counter brace, whether all of wood or provided with a metallic end or sheath; the plate of metal bearing upon the metallic end or sheath (or upon the end of the wood, when the metallic end or sheath is not used), at the top of the girder, and the nuts and the bolts passing through the clamping pieces, the upper chords, and the posts by which the plate of metal is drawn down upon the metallic end or sheath, and the adjustment of the length of the counter brace is effected, substantially as described.

[This is the Bridge which was experimented on last fall at the Novelty Works, this city, an account of which we presented to our readers at the time.]

To Sylvanus Miller, of Urbanna, O., for improved Rake to Harvesting Machines.

The guide, arranged as described in connection with the tilting roller, for the guidanceof the rake in a path similar to that which it would receive from the human hand—by which it removes periodically the grain or grass from the bed, and frees itself by the retraction of the teeth of the rake endwise.

To Wm. E. Milligan, of Troy, N. Y., for improved arrangement of the flues and water spaces of steam boilers.

I claim general arrangement of the tubes and flues of the boiler, in the manner described; that is to say, the water tubes connected with an upper and lower tube sheet, in combination with the flues of less length than the tubes, which flues are also connected with an upper and lower flue sheet, whereby two horizontal flues are formed in such connection with each other by means of the vertical flues, that the product of combustion from the fire place shall pass into the upper horizontal flue, and thence down the vertical flues into the lower horizontal flue; having thus the facility of parting with its heat on the one hand by radiation through the flues to the water spaces surrounding them, and on the other through the tubes to the water circulating through those, and this whether the said tubes and flues are placed vertically or horizontally, the whole being constructed and operating substantially as set forth.

To Wm. Panton, of Milton, Mass., for improvement in machines for Splitting Leather.

I do not claim as my invention, in connection with the upper feed roller, the use of a lower one, such as is usually termed a spring or pressure roller, or one having a hard or practically inelastic surface. But I claim as my improvement in machinery for splitting or dressing wet hides, the employment of an elastic surface roller (or roller made of gum elastic or other like material placed around an axle or shaft), and an inelastic roller (as feed rollers) in connection with the cutting knife, made either stationary or, what is better, to have a vibratory or reciprocating motion, all substantially as specified.

To Erastus Stebbins, of Chicopee, Mass., for improvement in Molasses Gates or Faucets.

I claim the arrangement of the spring which bears the gate against the seat (said spring being arranged so as to bear against the outer edge instead of the central part of the gate), in connection with making the said gate separate from the lever, and to work on a projection or screw therefrom, essentially as specified.

To James Warner, of Springfield, Mass., for improvement in Revolving Breech Fire-Arms.

I claim the arrangement for securing the barrel to the stock, viz., the combination of the stud with the notch in the back strap, and with the notch and pin as described.

To Dennison Woodcock, of Independence Centre, N. Y., for improvement in machines for Sawing and Dressing Staves.

I do not claim the use of a cylindrical saw, as such has frequently been used, but I claim the employment of the saw seated loose upon a pulley so as to form an eccentric position with the same as specified, in combination with the cutters, the several parts constructed and operating together, for the purposes set forth, substantially as described.

DESIGNS.

To Elijah P. Penniman, of Rochester, N. Y., for two Designs for Stove Plates.

To Apollos Richmond, of Providence, R. I., (assignor to A. C. Barstow & Co.), for Design for Plates of Parlor Stoves.

## A New Steam Engine.

MESSRS. EDITORS—A scheme has occurred to me which you can propose to your numerous readers—mechanics and engineers—which some of them may be induced to experiment upon, so as to arrive at a practical application of it to a useful purpose, namely, the obtaining a rotary motion from a rectilinear one, by means of a right and left hand screw inscribed on the outside of a drum or cylinder; the drum being fixed on a fly-wheel, paddle, or propeller shaft, with two fixed guides along the outside of the drum, on which slide two sets of friction wheels, moved from the cross-head of a steam cylinder, and are alternately connected and disconnected in the grooves of the screws, according to the alternate motion of the steam piston; or, instead of disconnecting, it can be obtained by a continuous or endless zig-zag groove around the drum. The object gained by this arrangement is a uniform application of the power exerted during the whole length of the stroke of the engine. The screws being made of whatever pitch experiment may determine safe, as in this instance it is one thing to move, and quite another to be moved.

The above is new as far as I know at present, and if given in this form I think all will understand it. D. McA.

Philadelphia, July 14, 1851.

[We publish the above both for the benefit of our correspondent and others. The principle of changing the one motion into the other, as set forth, is not new, nor is it a good plan: the friction is very great. Every person who has studied the "Mechanical Movements" is acquainted with this mode of changing the motion. We have a model in our office which illustrates this. A hollow drum, with a zig-zag groove around its periphery, and having the upper end of a pendulum vibrating in the said groove, with a weight attached to a cord on the drum spindle, will make a very simple clock; the drum acts as an escapement moving round the hands on the dial.—ED.

## No. of Patents Issued in each Year from 1821 to 1850.

| | | | | | |
|---|---|---|---|---|---|
| 1821, | 167 | Patents. | 1836, | 677 | Patents. |
| 1822, | 203 | " | 1837, | 429 | " |
| 1823, | 117 | " | 1838, | 509 | " |
| 1824, | 224 | " | 1839, | 410 | " |
| 1825, | 300 | " | 1840, | 452 | " |
| 1826, | 327 | " | 1841, | 494 | " |
| 1827, | 334 | " | 1842, | 517 | " |
| 1828, | 366 | " | 1843, | 553 | " |
| 1829, | 439 | " | 1844, | 502 | " |
| 1830, | 551 | " | 1845, | 502 | " |
| 1831, | 575 | " | 1846, | 619 | " |
| 1832, | 473 | " | 1847, | 572 | " |
| 1833, | 579 | " | 1848, | 660 | " |
| 1834, | 608 | " | 1849, | 1076 | " |
| 1835, | 746 | " | 1850, | 995 | " |

By the foregoing list it will be perceived that, in thirty years, no less than 16,067 patents have been granted. They have increased from 167, in one year, to 995. The number issued has not been uniform from year to year, by any means. For example, in 1835, there were 746 granted, while in 1845 there were only 502—244 less. This we cannot give any reason for at present. In 1849 there were 81 more patents granted than in 1850; this was owing to the dispatch that was used when Mr. Ewbank went in, to clear up accounts. The examinations were, perhaps, too hastily made.

## Observations on the Mammoth Cave.

The last number of Silliman's Journal contains an interesting account of the Mammoth Cave, in a letter addressed to Prof. Guyot by Prof. Silliman, Jr., who has recently made an exploration of its mysteries; and also, in connection with Mr. R. N. Mantell, made a collection of the animals found there. One atmospheric phenomenon attracted the attention of these gentlemen, and taxed their ingenuity for a satisfactory explanation, viz.:—The blast of cool air blowing outward from the mouth of the cave, which rendered it nearly impossible to enter with a lighted lamp. If the external air has a temperature of 90° Fahr., the blast amounts to a gale; but if the air without has a temperature of 59—60°, no current is observed and the flame of a lamp held in a favorable position, indicates none. It immediately occurred to me (said Prof. Silman) that there must be two currents, one above of warmer air, passing inward, and one below of colder air passing outward, and the reverse; but experiment soon satisfied me that this was not the case. Only one current could be discovered, and on enquiry of our intelligent guide, I had found that this phenomenon had attracted his attention, and that he was satisfied from many observations that only one current existed, and that this flared *out* when the external air was above 60° and *inward* when this was below 60°.

The phenomenon is accounted for by Prof. Silliman on scientific principles, as follows: The mouth of the cave is the only communication between the external air and the vast labyrinth of galleries and avenues which stretch away for many miles in the solid limestone. The air in these underground excavations is pure and exhilarating, which may in part be accounted for by the nitre beds of incredible extent, as the nitrogen which is consumed in the formation of the nitrate of lime must have its proportion of free oxygen disengaged, thus enriching this subterranean atmosphere with a larger portion of the exhilarating principle. The temperature of the cave is uniformly 59°, summer and winter, and this is probably very near to the annual mean of the external air. The expansion which accompanies an elevation of temperature in the outer air is immediately felt by the denser air of the cave and it flows out in the obedience to the law of motion in fluids, and the outward current continues without interruption as long as the outer air has a higher temperature than the cave.

The phenomena of life within the cave are comparatively few but interesting. There are several insects, the largest of which is a sort of cricket, with enormously long antennæ. There are several species of Caleoptra, mostly burrowing in the nitre earth. There are some small species of water insects, supposed to be crustaceous. Of fish, there are two species, one of which, as is well known, is entirely eyeless; the other has external eyes, but is quite blind. The only mammal, except the bats, is a rat, which is very abundant. Prof. Silliman is of opinion that the excavations of the Mammoth Cave have been formed by water, and by no other cause.

## How to Toast Bread.

If you would have a slice so toasted as to be pleasant to the palate, and wholesome and easily digested, never let one particle of the surface be charred. Chestnut brown is even too far deep for a good toast; and the color of a fox is rather too deep. The nearer it can be kept to a straw color, the more delicious to the taste, and the more wholesome it will be. This is done by keeping the bread a proper distance from the fire and exposing it to a proper heat.

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### TO CORRESPONDENTS.

J. E.. of Canada.—We have tried an experiment with the syphon or ram you sent, but cannot get it to fulfil the useful object intended.

N. B. W., of Va., and H. S., of N. Y.—Yours next week.

L. P. S., of C.—We have never heard of the like effects being produced by vibration.

W. W. W., of Ct.—Swingle's power mortising machine, made somewhere in Boston, is a very excellent one. We cannot say which is the best mortising machine ; we sell the hand kind.

P. H. G., of Ga.—We are much obliged to you for the information about the R. R. We are also much obliged to you for the sketch of the malformation, as these things always interest those who are devoted to science.

H. K., of Va.—We have examined the improved forge tube, and will say that we have never seen the like before ; we believe it to be patentable.

J. B. C., of Tenn.—Yours will be published soon.

C. L., of Ill.—Yours with the $5 was received. We believe that two wheels on one shaft is much older than Parker's patent. About the controversial part we do not pretend to judge : we would publish a brief statement of facts if presented by you—no man should be wronged by an unjust public opinion.

T. McC., of Ill.—Your letter of the 9th has been submitted to the parties who own the machine in question, who will no doubt reply to all your inquiries. We were unable to give the information.

S., of Vt.—No, sir, we shall do no such a thing. Have you not learned, yet, that anonymous correspondence receives no attention at this office : if you have not previously known that fact, please to remember it, and do not trouble us with your communications over the signature "S," unless you send your real name along too.

A. J. S., of Ga.—Your letters patent were duly received, also your letter enclosing funds. The engravings are progressing and will be published in a few weeks. Those troughs we cannot introduce in the engraving, so as to have the matter rendered intelligible.

M. H., of Pa.—It would require too much time to describe to you by letter, all the various seed drills that have been patented, and we must respectfully decline the task. If you have an invention on seed planters it will be much less trouble for you to get up a model of it and send for our examination than for us to describe all the kinds we know of.

L. D. G., of Mass.—Have heard nothing from your cases yet, although many patents have been granted to subsequent applicants. We will institute an inquiry at the office concerning your case immediately. $1 received and used as per instructions.

J. R. S. of Ohio."—The sum total of the whole matter, is that you have been deceived, or rather been lulled asleep by your own procrastinating spirit. Another has got the patent and a good one it is ; he will no doubt make his fortune out of it.

L. B. G., of Pa.—We are sorry to be obliged so often to disappoint you, but it cannot be helped. Your last invention would have been new a year or two ago, but Mr. Haussknecht, of Ct., has an application now at the Patent Office on precisely a similar device to the one described by you.

S. V. R., of N. Y."—If you would be wise for your own sake get three engravings of your machine published in the Scientific American. It will be to your advantage.

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Money received on account of Patent Office business since July 14 :

I. S., of N. H., $30 ; McD. & Bro., N. Y., $30 ; G. A. W., of Pa., $20 ; A. L., of N. J., $12 ; M. C., of Ill., $50 ; L. & E., of N. Y., $25 ; F. Van D., of Mich., $25 ; A. C., of Ct., $15 ; M. & C., of Ct., $22 ; C. B. H., of N. Y., $40.

Specifications and drawings of inventions belonging to parties with the following initials, were forwarded from this office to the Patent Office from June 24 to July 14 :—

G. A. W., of Pa. ; J. E. M., of Ct. ; W. J. McA., of Ga., F. Van D., of Mich. ; L. & E., of N. Y., C. B. H., of N. Y., (2) ; J. McD. & Bro., N. Y.

### Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement :

Of Volumes 1, 2, and 3—none.

Of Volume 4, about 20 Nos., price 50 cts.

Of Volume 5, all, price, in sheets, $2 ; bound, $2,75.

Of Volume 6, all back Nos., at subscription price

### New Edition of the Patent Laws.

We have just issued another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office We shall continue to furnish them for 12 1-2 cts. per copy.

### Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office ; stating the name of the patentee, and enclosing one dollar as fee for copying.


**AARON KILBORN,** No. 4 Howard street, New Haven, has on hand, and is now finishing, five 14 horse power engines ; price, including boiler and all fixtures, $1200 ; twelve of from 12 to 6 horse-power, all of the most approved patterns, iron bed frame and pulley balance wheel. Galvanized Chain, and fixtures for chain pumps always on hand and for sale. 45 10*

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## American and Foreign Patent Agency.

**IMPORTANT TO INVENTORS.**—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

**15 HORSE-POWER ENGINE & BOILER** for $1000.—We have for sale a first rate Engine and boiler, built by Stillman, Allen & Co., of the Novelty Works, which will be sold at about half its original cost. The boiler is 20 feet long and 35 in. in diameter ; 2 return flues, 11 in. in diameter each, with steam chamber top of boiler 2 ft. high, by 16 in. diameter. The heads are wrought iron, with grate bars, fronts, binders, and bolts complete. all made in the best manner, and called by the manufacturers a 20 horse-power boiler ; also sheet-iron cap to conduct the smoke from the end of the boiler to the chimney. The Engine is upon a solid horizontal cast-iron frame 13 1-2 ft long, 2 1-2 wide, 9 in. deep ; has a belt balance wheel 8 ft. diameter, 12 in. face ; cylinder 2 1-2 ft. stroke and 8 3-4 in diameter ; has copper connecting pipes and heater for heating water before entering boiler ; it has double pumps, and the whole is so complete and in such condition that no expense need be incurred in putting it in running order after being properly set. The Engine and Boiler have been in use but 3 years, and are offered at the low price of $1,000 to close a concern. Any one wishing an engine and boiler of the above capacity, will find this an opportunity to purchase cheap which does not often occur.

Any of our subscribers remitting a draft on New York for $1,000, will receive in exchange therefor an engine and boiler which would not be furnished by a manufacturer for less than $1,800. Address
MUNN & CO., (Post-Paid.)

**IMPORTANT NOTICE.**—The subscribers, owners of A. B. Wilson's Sewing Machine, patented Nov. 12, 1850, now offer for sale the following States and Territories :—Vermont, New Hampshire, Virginia, Indiana, Wisconsin, Kentucky, Iowa, Oregon, Florida, California, Louisiana, Ohio, Arkansas, Delaware, and Minesota and Deseret : any of the above territory will be sold to suit purchasers, with or without machines. Any communications addressed (post-paid) to E. E. Lee, Earl's Hotel, New York City, will receive prompt attention. E. E. LEE,
45 2* ROYAL BALL.

**STOP THIEF.**—All editors are requested to pass the scoundrel round. The public are cautioned against a pirate who stole the Model of a Match & Flint Machine invented and patented by me on the 29th of April, 1851. The said person is trying to sell my machine under secrecy and pretence that it is his own. He being irresponsible and not to be believed, I would advise all to beware of him. I will hold all persons who may purchase the right of this machine from him responsible for the payment. L. L. GILLILAND.
Dayton, O., July 10, 1851. 45 4*

**WANTED.**—A situation is wanted by a person capable of planning and constructing furnaces for smelting iron ore, or erecting rolling mills. He is an experienced mechanic, thoroughly conversant with the iron business, and would like a permanent situation in some of the Southern States. Address M. E., Dover, N. J. 45 10*

**WANTED**—A master workman on engine lathes, a good mechanic of unexceptionable moral character and habits. References required.

Also one or two other machinists, qualified as above, and acquainted with lathe building. Address immediately to G. T. McLAUTHLIN, Plymouth, Mass. 1*

**CLOCKS FOR CHURCHES, PUBLIC** Buildings, Railroad Stations, &c.—The undersigned having succeeded in counteracting, effectually, the influence of the changes of temperature upon the pendulum, and introduced a new regulator, by which great accuracy of time is produced, also the retaining power (which keeps the clock going while being wound) are prepared to furnish Clocks superior to any made in the United States. Ample opportunity will be afforded to test their performance, and those not proving satisfactory, when completed may be rejected. Astronomical Clocks made and warranted equal to any imported.

Glass (Illuminated) Dials of the most beautiful description furnished. Address
SHERRY & BYRAM,
Oakland Works, Sag Harbor, L. I.

"Mr. Byram has established his reputation as one of the first clock makers in the world"—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Journal of Com. 29 12eow*

**LAW'S PLANER FOR PLANK, BOARDS,** &c., is now attracting much attention on account of its effectiveness, the excellence of its work, its simplicity, and consequent economy. Machines are now in operation in Brooklyn, New York City, and at various points South and West. Rights or machines for sale by H. LAW, 23 Park Row. 45 tf

**WATTS & BELCHER,** Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions : Washington Factory, Newark, N. J. 38 13*

**FOR SALE**—One 4 1-2 feet Iron Planer, weighing 1,700 lbs., a good machine. Also second-hand Engine Lathes—one a screw lathe. Apply to ELI WHITNEY, New Haven, Ct. 42 6*

**MECHANICS' FAIR.**—The Middlesex Mechanic's Association will open their first exhibition for the encouragement of the mechanic arts and manufactures in the city of Lowell, on Tuesday, Sept. 16, 1851. The Committee of Arrangements for this proposed Fair, respectfully invite and solicit all persons engaged in the various branches of mechanism, manufactures, science, and art, to present specimens of their various products for exhibition and premium. Ladies are cordially invited to present specimens of their ingenuity and taste. Premiums will be awarded as the articles presented may merit. Articles for exhibition should be sent on or before Sept. 10th. For more particular information or copies of the circular, address (post-paid) J. A. Beard, Esq., Supt., Lowell, Mass. By order, OLIVER M. WHIPPLE, Chairman.
M. C. BRYANT, Sec'y. 40 10

**LEONARD'S MACHINERY DEPOT,** 109 Pearl st. 60 Beaver, N. Y.—The subscriber is constantly receiving, and offers for sale, a great variety of articles connected with the mechanical and manufacturing interest, viz., Machinists' Tools—engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, bolt cutters, slide rests, universal chucks, &c. Carpenters' Tools—mortising and tennoning machines, wood planing machines, &c. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing,—wrought iron shafting, brass and iron castings made to order. Cotton and Woolen Machinery furnished from the best makers. Cotton Gins, hand and power, and power presses. Leather Banding of all widths, made in a superior manner, from the best oak tanned leather, Manufacturers' Findings of every description—bobbins, reeds, shuttles, temples, pickers, card clothing, roller cloth, potato and wheat starch, oils, &c. P. A. LEONARD. 33tf.

**PATENT CAR AXLE LATHE.**—I am now manufacturing and have for sale the above lathes : they will turn and finish six sets per day, weight 5,000 lbs., price $600. I have also for sale my Patent Engine Screw Lathe, for turning and chucking tapers, cutting screws, and all kinds of common job work ; weight 1500 lbs., price $225, if the above lathes do not give good satisfaction, the money will be refunded on the return of the lathe, if within six months. J. D. WHITE,
32 13* Hartford, Conn.

**GREAT REDUCTION IN PRICE.**—The most valuable book of the day, containing domestic and medical recipes, rules with regard to the recovery and preservation of health, an account of the different medical theories of the day, useful tables, &c., entitled "THE GRAEFENBERG MANUAL OF HEALTH." It is complete in one volume of seven parts, and is beautifully printed upon fine paper, in a convenient form of 300 pages. The immense success which has attended the sale of previous editions, has warranted a reduction in the price of this (the 7th) edition, from 50 to 25 cts. per copy. Any number of copies, from one upward, will be forwarded upon the receipt of the money, (post-paid). Address THE GRAEFENBERG COMPANY, 214 Broadway, N Y., or this Office. 38tf

**THE COTTON CULTIVATOR,** Patented March 20, 1849, is in successful operation in Maury Co., Tenn., both in the cultivation of corn and cotton ; it is a saving of one-third the labor usually taken in the cultivation of the above named crops.—State, county, or plantation rights for sale : those wishing to buy will do well to come and see those that use them, and if they do not find them recommended by good farmers as here stated, I will bind myself to give them the right to any State or county. The farmers, in some places, have clubbed together and bought their counties, and have made money by it. The patentee, or some of his agents, will attend most of the Fairs this season, where the Cultivator may be seen. SAMUEL W. AKIN.
Springhill, Maury Co., Tenn. 41 5*

**BRICK-MAKER WANTED.**—I am desirous of obtaining a foreman for an extensive brick-yard : it will be necessary that he be a sober industrious man, a practical brick-maker, fully competent to superintend the work of 40 men ; to such a person a salary of $500 a year would be given ; situation permanent, upon good behavior. Address A. MILLER, Raleigh, Canada West. 43 4

**MONTGOMERY MANUFACTURING CO'S** Iron Works, Montgomery Ala. Capital invested, $250,000. Steam Engines and Boilers, Reuben Rich's cast-iron centre vent water wheel and iron scrolls complete (the very best wheel in use), sugar mills, saw and grist mill irons of most approved patterns, iron and brass castings of every variety, &c. Orders promptly executed, and upon terms as favorable as can be secured from the best northern establishments. When required, deliveries made (through their agents) at Mobile or New Orleans. Address GINDRAT & CO., Agents. 42 3m

**BEARDSLEE'S PATENT PLANING MACHINE,** for Planing, Tonguing, and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine Shop and Foundry of Messrs. F. & T. Townsend, Albany, N. Y., where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the above-named foundry, or at his residence, No. 764 Broadway, Albany. GEO. W. BEARDSLEE. 43tf

**MORTISING MACHINE.**—Dear Sirs : I received the Portable Mortising Machine about 3 weeks ago : I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.
Nashville, Tenn., June 22, 1851.
The above machines are for sale by MUNN & CO., price $20—boxed and shipped. 42 tf

**PALMER'S ARTIFICIAL LEGS.**—Manufactured at Springfield, Mass., and 376 Chestnut st, Philadelphia, by Messrs. Palmer & Co.—All orders from New York and New England must be made to Palmer & Co., Springfield, Mass.—"I have examined carefully the Artificial Leg, invented by Mr. B. F. Palmer ; its construction is simple and its execution beautiful, and, what is most important, those who have the misfortune to require a substitute for a natural limb, and the good fortune to use it, all concur in bearing practical testimony to its superiority in comfort and utility. VALENTINE MOTT.
New York, Jan. 29, 51." 39 6meow*

**CHILD'S PREMIUM SAW MILL**—To Plank Road Contractors and Lumbermen generally.—The subscriber having obtained a patent for improvements in circular saw mills, by which large timber can be cut with as great facility as small, and with one half less power, and one-third less waste of timber than by ordinary mills, offers mills and rights on reasonable terms. For illustration see Scientific American of March 15th, 1851. O. C. CHILD.
Granville, Ill., May, 26, 2 51. 39 9eow*

**A CARD.**—The undersigned beg leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton st. 42 3m*

**DICK'S GREAT POWER PRESS.**—The public are hereby informed that the Matteawan Company, having entered into an arrangement with the Patentee for the manufacture of the so-called Dick's Anti-Friction Press, are now prepared to execute orders for the following, to which this power is applicable, viz.—Boiler Punches, Boiler Plate Shears, Saw Gummers, Rail Straighteners, Copying and Sealing Presses, Book and Paper Presses, Embossing Presses, Presses for Baling Cotton and Woollen Goods—Cotton, Hay, Tobacco, and Cider Presses ; Flaxseed, Lard, and Sperm Oil Presses ; Stump Extractors, &c. &c. The convenience and celerity with which this machine can be operated, is such that on an average, not more than one-fourth the time will be required to do the same work with the same force required by any other machine.
WILLIAM B. LEONARD, Agent,
25tf No. 66 Beaver st., New York City.

**MACHINES FOR CUTTING SHINGLES.** The extraordinary success of Wood's Patent Shingle Machine, under every circumstance where it has been tried, fully establishes its superiority over any other machine for the purpose ever yet offered to the public. It received the first premium at the last Fair of the American Institute—where its operation was witnessed by hundreds. A few State rights remain unsold. Patented January 8th, 1850,—13 years more to run. Terms made easy to the purchaser. Address, (post-paid) JAMES D. JOHNSON, Redding Ridge, Conn., or Wm. WOOD, Westport, Conn.. All letters will be promptly attended to. 37tf

**TO PAINTERS AND OTHERS.**—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
35tf Painters and Chemists

**MACHINERY.**—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines Dick's Presses, Punches, and Shears ; Mortising and Tennoning Machines, Belting, machinery oil ; Beal's patent Cob and Corn Mills ; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 38tf

**IRON FOUNDERS MATERIALS**—viz., fine ground and Bolted Sea Coal, Charcoal, Lehigh, Soapstone, and Black Lead Facing. Iron and brass moulding Sand ; Fire Clay, Fire Sand, and Kaolin ; also English, Scotch, and Welsh Fire Bricks—plain, arch, circh, circular, and tower cupola, for sale by G. O. ROBERTSON, Liberty Place, between 57 and 59 Liberty st., (near the Post Office), N. Y. 44 12*

**RAILROAD CAR MANUFACTORY.**—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
16tf 28 Platt st., New York.

**LATHES FOR BROOM HANDLES, Etc.** We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds ; Hoe Handles, Fork Handles, and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid) MUNN & CO.,
At this Office.

**WOODWORTH'S PLANING MACHINE.** For sale, the right to use this justly celebrated labor-saving machine in the following States, viz.: Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway. 38 10*

**SCRANTON & PARSHLEY,** Tool Builders, New Haven, Conn., having had many applications for castings from their lathe patterns, with beds planed and screw and gearing cut, have now made arrangements to accommodate that class of customers ; this arrangement will enable small shops, with a little more than half of the amount of ready cash, to get them a new lathe. Cuts of these lathes and other tools can be had by addressing as above (post-paid). N. B. Machinists' tools constantly on hand. 40tf

**MECHANICS' INSTITUTE FAIR.**—The attention of Mechanics, inventors, and artisans is especially called to the Polytechnic Exhibition, which will open at the rooms, cor. Bowery and Division st, on the 15th of May. Those who wish to exhibit models, machinery, &c., of mechanical skill, and those who would like to carry on, permanently, any mechanical occupation that would be in any way curious or attractive to visitors, are requested to call on the Actuary. Steam power will be provided. Well-lighted, warmed, and airy rooms can be had on liberal terms. As this Exhibition is permanent, an excellent opportunity is offered to skillful mechanics to bring themselves into notice. Articles may be sent in immediately and will be taken care of and insured. Z. PRATT, Prest.; T. C. DODD, Actuary. 34tf


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# Scientific Museum.

### Scientific Memoranda.

ARTIFICIAL TOPAZ.—M. Daubree has communicated to the Paris Academy of Sciences the results of some researches on the artificial formation of topaz. Pure alumina, previously calcined by a bright red heat, is submitted to the action of a current of fluoride of silicon. After two exposures of this kind, the alumina increased in weight 70 per cent. The product contained fluorine, and what was more, this fluorine is in such a state of combination as not to be acted upon by boiling concentrated sulphuric acid. By this characteristic alone, the substance produced offers a great resemblance to topaz, the four constituent elements of which it also contains. A quantitative analysis indicated its very near appproach to, if not identity with topaz. Its identity, which is 3·47, is the same as that of natural topaz.

DURABLE ROOFS.—Roofs of buildings, according to the Genesee Farmer, are now successfully made, by first covering with sheets of tarred paper, which is then covered with hot pitch, and with a coating of fine gravel while the pitch is hot. The cost is about the same as with shingles. Old and leaky roofs are cured by two successive coats of hot coal tar, each followed by a covering of sand, care being taken to introduce the tar into all the crevices.

[We prefer shingles to this kind of roof, for dwelling houses at least. For sheds and out houses, having flat roofs, this composition is certainly a very good one.

PLEASANT APPLICATION TO THE TEETH.—It is a fact, but not generally known, that the common strawberry is a natural dentrifice; and that its juice, without previous preparation whatever, dissolves the tartareous incrustations on the teeth, and makes the breath sweet and agreeable.—[Exchange.

[We cannot vouch for the accuracy of the above, but it is something that can easily be tested without sacrifice or fear.

AMERICAN PISTOLS FOR THE BRITISH ARMY.—The Board of Ordinance, says the London Morning Post, being desirous of obtaining for the officers of the 12th lancers, now under orders for the Cape, 25 repeating pistols invented by Mr. Colt, a citizen of the United States of America, and now exhibiting in the Great Exhibition, a request has been made and preferred to the authorities for permission to receive the pistols from the exhibition building, as they are intended for the use and service of the Queen's troops.

GREAT ESTABLISHMENT FOR CASTING IRON PIPES.—The following account of casting metal pipes is taken from the "Glasgow Mail," and we may safely infer that this is the largest iron pipe foundry in the world :

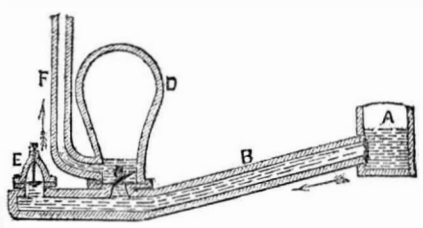
"At the Foundry of Messrs. D. Y. Stewart & Co., of St. Rollox, the process of pipe casting proceeds on a scale of great magnitude. This company not long since, completed a contract for the Liverpool Company, for 4,500 pipes, each more than 12 feet in length, 44 inches in the bore, and weighing in the aggregate more than 12,000 tons. At the time of our visit they were busily engaged in casting pipes of 18 inches diameter, for the town of Brighton. We notice this work at St. Rollox principally in connection with an ingenious, and yet simple process, invented and patented by Mr. Stewart, the managing partner, by which no fewer than twenty of these largest-sized Liverpool pipes have been constructed in one day, and that with a much smaller squad of hands than is required by the ordinary mode of casting. With the exception of the drying, the whole process of moulding and casting is gone through in half an hour. The malleable iron case, on its railway carriage, is placed under the moulding machine; the pipe is completely moulded in a period of three minutes—the faucet formed, and the running number impressed; the whole is then transferred to the hot air stove; thence carried round to the cupola, where the core is inserted and the molten metal, at a delicately-determined degree of temperature, is introduced from an enormous cauldron, suspended from a powerful crane. While the metal is being poured in, myriads of the most brilliant and fantastic scintillations are often evolved.

Immediately afterwards, and at the critical moment of incipient contraction and setting of the metal, the core is started by means of a hydraulic press, and the huge tube, every part of which is of equal thickness and strength, is carried away and deposited in the yard for cooling, dressing and testing. Altogether, in the manufacture of pipes we consider this the most ingenious and useful invention of the present day."

### Hydraulics.

[Continued from page 352.]

FIG. 59.




The accompanying engraving is a Hydraulic Ram, manufactured by James Ives & Co., Hamden, Conn. A is the reservoir; B the fountain conductor; C is the valve opening into the air chamber, D. This chamber, in Messrs. Ives & Co.'s ram is made of thick glass, fitting into a brass seat; F is the discharge pipe. This is a very beautiful and excellent Water Ram. The different sized rams require springs affording water as follows :—No. 2 Ram, 2 quarts to 2 gallons per minute; No. 3, 2 gallons to 4 quarts; No. 4, 3 gallons to 7 quarts. Place the Ram in a pit about 3 feet deep, and the pipe deep enough to be secure from frost. The size of the drive pipe should be the same as that of the large coupling tube, to which it is to be attached by soldering. Its length from 30 to 50 feet, according to the height to which the water is to be raised. Its weight must be sufficient to withstand the pressure, which is considerable, and which increases according to the fall from the spring to the ram. It should be protected by a good strainer at the upper end. For the supply pipe, half inch is used, the weight of which must be according to the elevation desired. It can be attached by the small coupling to either side of the ram, according to convenience, and in the same manner as the drive pipe. When the water is let on to the ram, the waste valve should be held open till the water has acquired a strong full current—then set it vibrating up and down. Air in the pipe may render it necessary to repeat the same several times.

Adjust the length of stroke by means of the screw over the valve, to the quantity of water in the spring, so as not to exhaust the head. Care must be taken to keep the small hole in the tube, to which the drive-pipe is attached, open, and on the upper side, which is for the purpose of keeping the air chamber supplied with air. The cap on the opposite side of the ram from the supply pipe, should be occasionally taken off, to discharge the sediment, should any accumulate.

The advantages of this ram over all other kinds in use, is stated to be as follows :—The air chamber can be removed without the trouble of bolts and nuts, and it being of glass the valve can at all times be examined, thus affording a useful and amusing privilege to persons who wish to see the philosophy of the machine. The stand also being made of brass, is entirely free from liability to rust, and more durable.

The Hydraulic Ram of W. & B. Douglass, manufactured by them at Middletown, Conn., has long had a very excellent character, and there are various other makers of rams who have an excellent reputation. In no country in the wide world are there so many hydraulic motors used as in the United States. The hydraulic ram is extensively employed, and is therefore a machine of no small notoriety.

The principle upon which the ram raises water above its natural level, is precisely the same as that observed in nature; during a storm of wind long swelling waves in the open sea alternately rise and fall, without the crests or tops of any being elevated much above those of the rest, but when they meet from opposite directions, or when their progress is suddenly arrested by the bow of a ship, by rocks, or other obstacles, part of the water is driven to great elevations. Thus the water is applied to the ram through a long inclined tube or pipe (usually of lead) as shown in the above cut at B, and its escape from the lower orifice is made suddenly to cease by means of a stop valve at E, as shown in the cut, (called the impetus valve,) when the momentum of the moving mass drives up through pipe, F, like the waves of the sea a portion of its own volume to an elevation much higher than the fountain from which it descends. Every person accustomed to draw water from aqueducts, or pipes that are supplied from very elevated sources must have observed that when the cock or discharge orifices are suddenly closed, a jar, or apparent blow and tremor is communicated back in the pipes, hence if a small pipe were soldered on to the aqueduct just back of said cock or other discharging orifice, and run up to a much greater height than the level of the fountain, then by suddenly opening and shutting said cock the water would be thrown up in said branch-pipe much above the level of the fountain head, and thus the principle of the hydraulic ram is explained, and we trust so fully set forth as to be understood and appreciated by all who have a place for applying this truly simple and cheap yet most invaluable apparatus for elevating water above its natural level.

### A New Remedy in Diarrhea, Cholera Infantum and Cholera Morbus.

The following recipe is from Laurence Reid, Professor of Chemistry in the New York Hospital :—"I would wish, through the medium of your paper, to give publicity to the fact, that I have seen instant relief given in cases of Diarrhea, by the use of hydro sulphuric acid, a tea-spoonfull of a saturated solution being mixed with four times its bulk of water. Also in a case of cholera infantum, in which the child was very much reduced, and the stomach in an extreme state of irritability, so that nothing would be retained, this remedy was administered with ease, and the child immediately improved, and has since recovered. I believe that this is a new remedy, and that there is no reason to apprehend any bad effects where it does not produce a cure, and I believe that it has some specific effect in counteracting the cause, and immediately arresting the diseases."

### Gigantic Water-Works in Ceylon.

We have held the opinion that the Croton Works were the most gigantic in the world, and we have heard the assumption made that no works of such magnitude ever existed in the days of old. So far as the latter assertion is concerned, it is not correct. Mr. Tennant, in his recent travels in the Island of Ceylon, describes some ancient Water Tanks, beside which our Croton Works are as some small creek compared to the Hudson river. One tank, named Pathariecolorn, is seven miles long, three hundred feet broad and 60 feet high. The tank was faced throughout its entire length with layers of square stones. This huge tank is but one of a great many scattered over the country, and had been erected for irrigation. It is partly in ruins, as the waters flow freely out of a huge breach two hundred feet wide, which appears to have been made centuries ago. The race which constructed these tanks has passed away, and the country where, at one time, there existed a highly civilized and skillful engineering people, is now the abode of wild Veddahs, a race whose homes are in tents and who wander about from place to place. An engineer has calculated that it would cost more than $4,000,000 to construct the front embankment to this huge water reservoir. What must have been the causes which exterminated the people who erected these works (and they must have been numerous) and left them to fall into ruins, tenanted only by the buffalo and the unclad savage? The savage is surely not the natural but the unnatural state of man—the savage is man shipwrecked in social position.

A Western paper describes the dress of a lady there, during a November rain storm, when mud is ancle deep, as follows : "a fur cape, a boa twisted four times round her neck, silk stockings, and French kid slippers."

## LITERARY NOTICES.

MOULDER AND IRON FOUNDER'S GUIDE.—This is the title of a neat volume by Fred. Overman, Mining Engineer, and author of several excellent works, and published by A. Hart, Philadelphia, a gentleman who has published and does publish some of the best scientific works in America. We believe this is the first work on the same subject published in America. It embraces a description of the different kinds of moulding and the materials, such as Green Sand, Open Sand, &c. The art of moulding is described in detail: the melting of metals, the qualities of the iron, the art of managing the moulds, &c., are all described. Receipts for alloys, bronzing, tinning, &c., are appended. It is illustrated with numerous engravings. As moulding is very extensively practiced in our country, this work will no doubt, as it should, have a very extensive sale, for it is an able and useful work.

AMERICAN COTTON SPINNER.—This is a neat book, got up in the same creditable style as the above one, and by the same publisher, A. Hart: it is compiled from the papers of the late Robert H. Baird. It is not illustrated, but it gives the dimensions and speed of machinery, draught and twist calculations, &c., together with rules and examples for making changes in the size and numbers of roving and yarn. Mr. Baird was widely known as an expert cotton spinner, but additions are made to his papers so as to bring the subject up to the present time. It embraces the arrangement of the different kinds of machinery, manner of conducting a factory, remarks on cotton and the cleaning of it, and some very useful remarks about water wheels. The whole of the calculations are made in simple arithmetical numbers, plain, and clear, with no design to show learning, thereby showing the most of it, with every intention to instruct and none to mislead by false formulæ. It is a book for which Mr. Hart has our sincere thanks, as a work capable of doing a great deal of good.

Dexter & Bros., 44 Ann street, have made such arrangements with the publishers of the "London Illustrated London News," that orders at wholesale may be filled by them at a less rate than ordering direct from the publishers. Dexter & Bro. are agents for nearly every publisher in this country, and for circulating newspapers, we know from their patronage with us, that no other house can compete with them. Their motto is "small profits and quick returns."

DICTIONARY OF MECHANICS AND ENGINE WORK.—No. 34 of this able work, published by D. Appleton & Co., New York, contains illustrated articles on Sugar Mills and Boilers, Telegraphs, Telescopes, Tempering Metals; Threshing Machine, &c. It is a very excellent number.

THE DOLLAR MAGAZINE, published by E. A. & G. L. Duyckinck, 109 Nassau st. The number for July embraces some choice articles, most of which are entirely original.

MECHANICS

INVENTORS
AND
MANUFACTURERS.

The Best Mechanical Paper
IN THE WORLD!
SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "*AMERICAN REPERTORY OF INVENTIONS.*"

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Publishers of the Scientific American,
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Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

Southern and Western Money taken at par for subscriptions.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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